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CONGRESS OF THE UNITED STATES
CONGRESSIONAL BUDGET OFFICE

October 1989

Updated Estimates of Medicare's Catastrophic Drug Insurance Program

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UPDATED ESTIMATES OF MEDICARE'S CATASTROPHIC DRUG INSURANCE PROGRAM

The Congress of the United States
Congressional Budget Office

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NOTES

All years referred to in this report are calendar years unless otherwise indicated.

The term outlays is used in this report to mean expenditures for benefits and administrative costs. In budget documents, outlays also include as offsetting receipts the flat premium paid by enrollees in the Supplementary Medical Insurance program. In order to contrast total receipts with total expenditures under the Catastrophic Drug Insurance program, however, receipts from the new flat premium have been combined with those from the income-related premium and reported as total receipts in this report.

Details in the text and tables of this report may not add to totals because of rounding.

PREFACE

The Medicare Catastrophic Coverage Act of 1988 required the Director of the Congressional Budget Office (CBO) to reestimate the costs to Medicare of covering outpatient prescription drugs as soon as data from the 1987 National Medical Expenditure Survey were available. These reestimates were transmitted to the Congress in July 1989. In part because they are significantly higher than the costs projected at the time of enactment, the Congress is currently considering repeal or modification of the new coverage. This study does not examine options for modifying or eliminating the program, however. Rather, it reports on the methodology used for the most recent cost projections and compares these estimates with earlier ones. In accordance with CBO's mandate to provide objective and impartial analysis, this study contains no recommendations.

This study was written by Stephen H. Long and Nancy M. Gordon. A number of people contributed to the estimates on which it is based. The outlay estimates were prepared primarily by Stephen H. Long and Donald N. Muse, with contributions from Lori B. Housman, Jack Rodgers, and Verdon S. Staines. The trust fund calculations and flat premium estimates were made by Holly H. Harvey. Outlay and trust fund estimates were directed by Charles E. Seagrave. Richard A. Kasten estimated receipts from the income-related premium under the direction of Rosemary D. Marcuss and Kathleen M. O'Connell. Several people provided useful comments on earlier drafts, including Robert W. Hartman, Jay Noell, Linda Radey, and Roberton C. Williams. Susan Hilton Labovich did the extensive computer programming, and Jill Bury typed the many drafts. The manuscript was edited by Sherry Snyder. Kathryn Quattrone and Toby Whitney prepared the report for publication.

Several people and organizations outside of CBO also contributed to the work. Staff of the National Center for Health Services Research and Health Care Technology Assessment were particularly helpful in providing data from the National Medical Expenditure Survey and consulting on their proper use. Staff of Pharmaceutical Data Services, Inc., answered many questions about their data. Several pharmacists from the American Pharmaceutical Association assisted with the reimbursement simulations. Finally, helpful comments were received from Nancy A. Mathiowetz, John F. Moeller, Pamela Farley Short, and Bruce C. Stuart.

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Director

October 1989

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PART I: OUTLAYS AND RECEIPTS OF THE CATASTROPHIC DRUG INSURANCE PROGRAM

CHAPTER I

ESTIMATING OUTLAYS AND RECEIPTS

The Medicare Catastrophic Coverage Act of 1988 (MCCA) provided the largest expansion of benefits for Medicare enrollees since the program began. One major component of this expansion was the provision that will pay for a portion of catastrophically large expenditures on outpatient prescription drugs and insulin.[1] The benefits provided by the MCCA are to be financed solely by the enrollees through an addition to the flat monthly premium for Supplementary Medical Insurance (SMI) and through an income-related or "supplemental" premium collected through the income tax system.[2] Specified portions of these premiums are dedicated to the Catastrophic Drug Insurance (CDI) Trust Fund from which the prescription drug benefits will be paid.

At the time Congress was considering the MCCA, a good deal of uncertainty surrounded the cost of covering catastrophic expenditures on prescription drugs. This uncertainty arose primarily because the cost estimates were based on extrapolations of data from the late 1970s and early 1980s, the most recent data then available. In fact, the lack of recent data contributed markedly to differences between the cost estimates prepared by the Congressional Budget Office (CBO) and those of the Administration. Knowing that information from the 1987 National Medical Expenditure Survey would be available in 1989, the Congress instructed CBO, in a provision of the MCCA, to reestimate the cost of the CDI program using these new data.

Part I of this report describes CBO's new estimates and their implications. The remainder of this chapter outlines the main provisions of the MCCA, presents the estimates of the CDI program, provides an overview of the methods used to generate them, and discusses the reasons for continued uncertainty. Chapter II contrasts these estimates

1. For simplicity, outpatient prescription drugs and insulin are referred to as prescription drugs hereafter.

2. In other words, Part B of Medicare, which used to be synonymous with SMI, has been expanded to include the Catastrophic Drug Insurance program.

with the ones reported by CBO at the time the MCCA was enacted, and with the ones CBO prepared in February 1989 that were also based on the data available when the Congress enacted the legislation. It also compares CBO's current estimates with those of the Administration. For those readers interested in greater detail, Part II provides a more elaborate description of CBO's estimating methodology for the CDI program. Chapter III describes how outlays were estimated and Chapter IV discusses receipts.

PROVISIONS OF THE MEDICARE CATASTROPHIC COVERAGE ACT

The MCCA provided catastrophic coverage under the Hospital Insurance (HI) and SMI programs, and also established a new program to cover catastrophic expenses for prescription drugs. The HI and SMI programs were expanded in several major ways. Starting in 1989, Medicare covers the cost of all hospital inpatient days above a deductible amount ($560 in 1989), substantially reducing the liabilities of enrollees with more than one stay or with exceptionally long stays. HI also covers up to 150 days a year of care in a skilled nursing facility (SNF), compared with the previous limit of 100 days for each spell of illness. In contrast to the previous situation, a prior hospital stay is not required for SNF coverage. Enrollees' copayments for SNF care have also been modified substantially, reducing out-of-pocket costs for those staying longer than 22 days, while raising them somewhat for those with shorter stays.[3] Beginning in January 1990, each enrollee's liability for SMI copayments will be capped. The cap will be $1,370 for 1990 and will be set by the Secretary of Health and Human Services (HHS) in subsequent years so that benefits will be provided to 7 percent of enrollees each year.[4]

The new Catastrophic Drug Insurance program will be phased in over the 1990-1993 period. In calendar year 1990, it will cover only immunosuppressive drugs and drugs administered intravenously at

3. More specifically, beginning in 1989, coinsurance requirements were changed from one-eighth of the hospital deductible amount ($70 in 1989) for days 21-100 in each spell to 20 percent of the average daily cost of SNF care ($25.50 in 1989) for days 1-8 in each year.

4. For a more extensive discussion of the MCCA's expansion of HI and SMI benefits, see "The Medicare Catastrophic Coverage Act of 1988," CBO Staff Working Paper (October 1988), pp. 2-4.

home. Beginning in 1991, Medicare will pay half of the allowed expenditures for all outpatient prescription drugs and insulin that exceed a deductible amount of $600; in 1992, Medicare will pay 60 percent of expenditures over $652, with enrollees responsible for the remaining 40 percent (see Table 1). In 1993 and beyond, provided that sufficient funding is available, Medicare will pay 80 percent of expenditures that exceed the deductible amounts. The Secretary of HHS will set these deductible amounts at whatever levels are necessary to provide benefits to 16.8 percent of enrollees each year--the proportion estimated at the time of enactment to receive benefits in 1991 and 1992.

Two additional premiums paid by enrollees--a flat premium and an income-related premium--will finance both the prescription drug and the new HI and SMI benefits (see Table 1). The act sets the level of the additional flat premium to be paid by each SMI/CDI enrollee in each year from 1989 through 1993, and sets the portion of the premium that will go to the CDI trust fund from which the prescription drug benefits will be paid. The remainder of the flat premium will be allocated to a new "catastrophic account," which was established to permit a comparison of expenditures on the new HI and SMI benefits with the portions of the new premiums earmarked to pay for them.

The supplemental or income-related premium--which will pay for the new HI and SMI benefits, as well as for coverage of prescription drugs--will also be divided between the CDI trust fund and the catastrophic account. This premium must be paid by any resident of the United States who is eligible for HI for at least six months during the year and who has a federal income tax liability of $150 or more. The maximum total income-related premium per person is $800 in 1989, rising to an estimated $1,200 in 1994. In the long run, the two premiums are to be adjusted so that 63 percent of the total financing will come from the income-related one.

Although the MCCA recognizes that receipts allocated to the CDI trust fund might not be sufficient to cover benefits and administrative costs at some point, it does not specify particular adjustments for 1991 and 1992. For 1993 and 1994, the Secretary of HHS has discretion to meet a projected shortfall by setting the coinsurance rate paid by beneficiaries at a higher level than that specified in the law. The coin-

TABLE 1. COST-SHARING AND FINANCING PROVISIONS OF THE CATASTROPHIC DRUG INSURANCE PROGRAM
(By calendar year)

	1990	1991	1992	1993	1994
Cost-Sharing Provisions					
Deductible (In dollars per year)[a]	550	600	652	1,092	1,224
Coinsurance Rate (In percent)[b]	50	50	40	20	20
Financing Provisions[c]					
Flat Premium (In dollars per year)	0.00	23.28	29.40	36.24	108.00
Income-Related Premium (In dollars per $150 of income tax liability)[d]	10.36	8.83	9.95	12.45	13.20[e]

SOURCES: Congressional Budget Office estimates and the Medicare Catastrophic Coverage Act of 1988.

NOTE: In 1990, coverage will be limited to immunosuppressive drugs and drugs administered intravenously at home. In 1991 and beyond, all outpatient prescription drugs and insulin will be covered.

a. For 1990, 1991, and 1992, the deductible is fixed by law. For 1993 and 1994, the deductible is to be set by the Secretary of Health and Human Services (HHS) so that the spending of 16.8 percent of Medicare enrollees will exceed the deductible.

b. In 1990, the coinsurance rate for immunosuppressive drugs administered in the second and subsequent years after a transplant will be 50 percent. With two exceptions, the coinsurance rate for all other outpatient prescription drugs and insulin is fixed by law at 50 percent for 1991 and at 40 percent for 1992. For 1993 and after, it is set at 20 percent unless the Secretary of HHS raises it to ensure that financing will be sufficient to pay benefits; the rate may not exceed the rate actually set for the previous year, however. In 1990 and thereafter, the coinsurance rate will be 20 percent for drugs administered intravenously at home and immunosuppressive drugs administered during the first year after a transplant.

c. See Table 13 for the provisions that finance the new Hospital Insurance (HI) and Supplementary Medical Insurance (SMI) benefits; this table reflects only the portion of the premiums that will finance the CDI program.

d. The maximum income-related premium per person is set at $800 for 1989, rising to $1,200 for 1994, as shown in Table 13.

e. Neither the level of the income-related premium for 1994, nor the division of the resulting receipts between the CDI trust fund and the catastrophic account for HI and SMI, was specified in the MCCA. Moreover, the possibility that the trust fund would be in deficit over several years was not envisioned at the time the rules for calculating these amounts were established. Consequently, this value is only illustrative.

surance rate cannot exceed the rate actually set for the preceding year, however. For 1994 and beyond, the Secretary may adjust the flat and income-related premiums to increase CDI receipts, subject to certain limits specified in the MCCA.

ESTIMATED OUTLAYS AND RECEIPTS OF THE CATASTROPHIC DRUG INSURANCE PROGRAM

CBO currently estimates that, over the fiscal year 1990-1994 period, outlays associated with Medicare's coverage of catastrophic expenses for prescription drugs will total $17.2 billion and receipts will total $14.9 billion. These outlay estimates assume that inadequate balances in the CDI trust fund will not constrain payments.[5] CBO projects that total outlays will grow from $2.2 billion in fiscal year 1991 to $5.4 billion in 1994, as shown in Table 2. About $1.6 billion is expected to be paid in benefits in fiscal year 1991, rising to $4.5 billion in 1994. Administrative costs are expected to rise from $0.5 billion in fiscal year 1991 to $0.9 billion in 1994.

Receipts will grow from $2.4 billion in fiscal year 1991 to $5.8 billion in 1994. About 60 percent of receipts will come from the income-related premium during the fiscal year 1991-1994 period. While receipts are projected to exceed outlays by $0.2 billion in 1991, a shortfall of $1.8 billion would occur in 1992, if outlays were not constrained as a result of inadequate balances in the trust fund. Over the 1990-1994 period, CDI outlays would exceed receipts by about $2.3 billion.

The implications of these projections for the CDI trust fund, which uses a calendar year accounting period, are shown in Table 3. The end-of-year balance will be positive only in 1990, and the cumulative shortfall will reach $4.0 billion by the end of 1994.

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5. The Administration prepared estimates of unconstrained outlays in its recent report on prescription drugs. In its 1990 budget submission, the Administration projected the CDI trust fund to be exhausted in 1992. As a result, its projected outlays for 1993 reflected only unpaid benefits related to prescriptions filled in 1992 and associated administrative costs. In other words, the Administration projected that no benefits related to 1993 prescriptions will be paid under current law.

TABLE 2. OUTLAYS AND RECEIPTS OF THE CATASTROPHIC DRUG INSURANCE PROGRAM
(By fiscal year, in billions of dollars)

	1990	1991	1992	1993	1994	Five-Year Total
Outlays						
Benefits	0.1	1.6	3.7	4.3	4.5	14.1
Administrative costs	0.1	0.5	0.7	0.8	0.9	3.1
Total	0.2	2.2	4.4	5.1	5.4	17.2
Receipts						
Income-related premium	0.8	1.8	1.6	2.1	2.6[a]	8.9
Flat premium[b]	c	0.6	1.0	1.2	3.2	5.9
Total	0.8	2.4	2.6	3.3	5.8	14.9
Outlays less Receipts[d]	-0.7	-0.2	1.8	1.7	-0.4	2.3

SOURCE: Congressional Budget Office estimates.

a. Neither the level of the income-related premium for 1994, nor the division of the resulting receipts between the CDI trust fund and the catastrophic account for Hospital Insurance and Supplementary Medical Insurance, was specified in the MCCA. Moreover, the possibility that the trust fund would be in deficit over several years was not envisioned at the time the rules for calculating these amounts were established. Consequently, this value is only illustrative.

b. Receipts from the flat premium are shown as an offsetting receipt (that is, a negative outlay) in budget documents.

c. Less than $50 million.

d. These amounts do not represent the full effect on the federal budget deficit because they do not take into account offsetting changes in outlays for other programs such as Medicaid.

The Congress included contingency margins in the financing provisions of the CDI program to assure the timely payment of benefits, to protect against unexpected events, and to account for the uncertainty in estimating how much the new provisions would cost. Because the amount of money available to make payments in a given year depends not only on that year's income but also on the balance in the CDI trust fund left over from previous years, contingency margins are calculated as the ratio of the projected end-of-year balance for a given calendar year to the expected spending for that same calendar year.[6] Current

6. The projected end-of-year balance reflects the amount of money left over after all payments in a given year are made--in other words, the amount of money that would be available to pay higher-than-projected costs or to make up for lower-than-projected receipts. Because it is important to know how much will be left over relative to anticipated spending, contingency margins are discussed in terms of percentages rather than dollars.

projections indicate, however, that the CDI trust fund will have a negative balance by the end of 1991. If outlays were not constrained, the contingency margin would fall to about -92 percent in 1993, compared with the 50 percent level scheduled at the time the MCCA was enacted. The contingency margin would improve in 1994, reaching -72 percent, because the rules established in the MCCA would raise the flat premium allocated to the CDI program to over $100 annually, compared with $36 in 1993.

CBO's current estimates also indicate that many more enrollees will benefit from the CDI program in 1991 and 1992 than was expected when the MCCA was enacted. Based on deductible amounts of $600 in 1991 and $652 in 1992, CBO's projections now show that between 26

TABLE 3. RESERVES IN THE CATASTROPHIC DRUG INSURANCE TRUST FUND
(By calendar year, in billions of dollars)

	1990	1991	1992	1993	1994[a]
End-of-Year Balance[b]	0.6	-0.3	-2.7	-4.7	-4.0
Outlays	0.2	3.5	4.9	5.1	5.6
Estimated Contingency Margin (In percent)[c]	247	-9	-55	-92	-72
Scheduled Contingency Margin (In percent)	n.a.	n.a.	75	50	25

SOURCE: Congressional Budget Office estimates.

NOTE: n.a. = not applicable.

a. Neither the level of the income-related premium for 1994, nor the division of the resulting receipts between the CDI trust fund and the catastrophic account for Hospital Insurance and Supplementary Medical Insurance, was specified in the MCCA. Moreover, the possibility that the trust fund would be in deficit over several years was not envisioned at the time the rules for calculating these amounts were established. Consequently, the end-of-year balance and the estimated contingency margin for 1994 are only illustrative.

b. Balances reflect payment of estimated administrative expenses.

c. Contingency margins are defined as the balance at the end of the year over outlays during the same year.

TABLE 4. ENROLLEES BENEFITING FROM THE CATASTROPHIC DRUG INSURANCE PROGRAM (By calendar year)

Enrollees Exceeding the Deductible Amount	1991	1992	1993	1994
In Millions	8.8	9.1	5.9	6.0
As a Percentage of All Enrollees	26.0	26.7	16.8	16.8

SOURCE: Congressional Budget Office estimates.

NOTE: Spending on prescription drugs for enrollees that exceeds the deductible amount will qualify for partial reimbursement from the CDI program. For 1990, 1991, and 1992, the deductible amount is fixed by law. For 1993 and 1994, the amount is to be set by the Secretary of Health and Human Services so that spending for 16.8 percent of Medicare enrollees will exceed it.

percent and 27 percent of enrollees--rather than the expected 16.8 percent--will have their prescription drug expenses partially reimbursed in those years (see Table 4). Because the act requires the Secretary of HHS to set the deductible amounts for 1993 and beyond so that 16.8 percent of enrollees will benefit from CDI, the deductible will have to rise sharply, to almost $1,100 for 1993 and more than $1,200 for 1994.

OVERVIEW OF CBO'S ESTIMATING METHODOLOGY

This section summarizes CBO's methodology for estimating outlays and receipts of the CDI program. Readers who wish a more detailed discussion of these methods should see Part II.

The first task in estimating outlays associated with Medicare's coverage of prescription drugs was to determine the average spending per enrollee and the distribution of that spending in the latest year for which data were available--1987. (The top portion of Box 1 provides an overview of how CBO estimated outlays.) The spending pattern in this base year was then projected for each year of the 1991-1994 period. Next, the portions of that spending that will exceed each year's deductible amount (and, therefore, qualify for partial reimbursement)

BOX 1
OVERVIEW OF THE ESTIMATING METHODOLOGY

	Outlays
Spending for Prescription Drugs	Estimate the amount of prescription drug spending for all Medicare enrollees in the base year
	Project these estimates for 1991 through 1994
	Calculate spending that would qualify for reimbursement and reduce it by required coinsurance
Changes Induced or Required by the MCCA	Adjust for induced demand
	Simulate effect of the reimbursement methods
	Make other adjustments
Program Administration	Add administrative costs
	Adjust for the timing of payments
Result	CBO estimate of outlays
	Receipts
Flat Premium	Project level of premium for years after 1993
	Estimate numbers of enrollees who will pay premium; multiply by premium levels
Income-Related Premium	Project incomes of enrollees for 1989 through 1994
	Calculate income tax liabilities of enrollees before adding supplemental premium for 1989 through 1994
	Calculate supplemental premium liabilities using specified rates
	Adjust for the timing of payments
Result	CBO estimate of receipts

SOURCE: Congressional Budget Office.

were calculated and reduced by the required amounts of enrollees' coinsurance. An adjustment was also made to take into account behavioral changes by enrollees, physicians, and pharmacists that are likely to occur in response to the MCCA's provisions. In addition, estimated outlays were lowered because of the act's reimbursement mechanisms, as explained below. Finally, CBO added administrative costs and adjusted outlays for the interval between the time prescription drugs are actually purchased and the time that reimbursement is made.

The bottom portion of Box 1 summarizes how receipts for the CDI program were estimated. CBO projected each year's receipts from the flat premium by multiplying the estimated number of enrollees by the legislated or projected premium. Estimating receipts from the income-related premium required projecting the income of enrollees and their income tax liabilities before adding the income-related premium for each year in the 1989-1994 period. The level of the income-related premium also had to be projected for 1994, following the procedures specified in the MCCA. Liabilities for the premium were then calculated based on these income-tax liabilities and the legislated or projected premium rates. CBO calculated receipts by adjusting the estimated liabilities for the income-related premium to reflect the timing pattern of tax payments.

Spending for Prescription Drugs

Data from the 1987 National Medical Expenditure Survey (NMES), a nationally representative survey of the noninstitutionalized population, formed the foundation of CBO's estimates of spending on prescription drugs for Medicare enrollees in 1987, the base year. These data determined the distribution of spending on prescription drugs for aged and disabled Medicare enrollees living in the community. Spending amounts were adjusted upward by 10 percent to compensate for assumed underreporting of drug expenses in the survey.

Because there are no suitable nationally representative data about spending on prescription drugs for Medicare enrollees who live in institutions such as nursing homes, CBO simulated them. The simulation assumed that the average level and the distribution of spending for institutionalized enrollees would be the same as for noninstitutionalized enrollees of the same sex who were not able to perform the same

number of activities of daily living (ADLs), such as bathing, dressing, or eating. Data on activity limitations were drawn from the 1985 National Nursing Home Survey (NNHS).

The total number of enrollees in 1987--31.1 million--came from the Health Care Financing Administration's data. The proportion of enrollees who were institutionalized--3.8 percent--was based on the NNHS, adjusted for information from Medicare claims data on those with short stays. Thus, CBO estimated that $9.4 billion was spent on prescription drugs for enrollees in 1987--an average of $289 for the 29.9 million noninstitutionalized enrollees and an average of $681 for the 1.2 million institutionalized enrollees.

In projecting spending on prescription drugs for the years after 1987, CBO assumed that nominal spending per enrollee would rise at an average rate of about 12 percent a year. This assumption represents continuing real growth in spending per enrollee--but at a slower rate than occurred in the 1980-1987 period--combined with CBO's projections of future inflation.[7] Both higher prices for, and greater use of, prescription drugs contributed to the projected rise in spending. Price increases for prescription drugs were expected to continue to outstrip increases in the prices of medical services, but the difference was expected to decline over the projection period in part because of the growing substitution of generic for brand-name drugs.[8] CBO also assumed that the number of prescriptions per enrollee would continue to grow, but that the annual rate of increase would gradually decline from the 1980-1987 average toward that experienced in the 1970s.

In contrast, CBO assumed that the distribution of spending relative to the average amount would not change between 1987 and 1994. This assumption seems reasonable considering that the three most recent surveys that reported on use of prescription drugs (for 1977, 1980, and 1987) produced nearly identical distributions, after adjusting them to have the same levels of average spending. Finally, the

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7. Growth between 1980 and 1987 was calculated by comparing the 1987 NMES with a comparable 1980 survey, the National Medical Care Utilization and Expenditure Survey. For the projections, CBO assumed that the same rate of increase applied to average spending for institutionalized enrollees as for those living in the community.

8. Projected growth in the prices of medical services was based in part on CBO's forecast of general inflation, reported in Congressional Budget Office, *The Economic and Budget Outlook: An Update* (August 1989).

numbers of enrollees were based on CBO's 1991-1994 projections of total enrollment in SMI/CDI.

CBO's next step was to calculate the portions of total spending that would be eligible for reimbursement. These portions will depend on the cost-sharing provisions of the CDI program--namely, the deductible amounts and coinsurance rates--which vary from year to year. For example, for 1991, CBO reduced projected total spending of $16.2 billion by the spending for enrollees who will fail to exceed the deductible ($4.2 billion) and by the first $600 of spending for each enrollee who will exceed the deductible ($5.5 billion). CBO then cut the remainder in half, because enrollees must pay 50 percent as coinsurance that year. The remaining $3.3 billion would qualify for reimbursement by Medicare in 1991.

Changes Induced or Required by the Medicare Catastrophic Coverage Act

Several other adjustments to the amounts described above were required to take into account the behavioral changes that the MCAA is likely to generate and the reimbursement mechanisms specified in the law.

Induced Demand. CBO estimated that overall spending on prescription drugs by enrollees will rise about 2 percent as a result of behavioral responses to Medicare's new prescription drug coverage. (This effect is commonly called "induced demand.") About three-quarters of this increase was assumed to affect spending that will exceed the $600 deductible amount in 1991. When expressed as a percentage of spending over this deductible amount, CBO's rate of induced demand is 4 percent. This rate might appear to be low--especially in view of the Administration's estimates, which are approximately 12 percent of overall spending or 30 percent of spending over the deductible amount. Consequently, the reasoning and evidence supporting CBO's decision are summarized here and are described in greater detail in Part II.

To estimate the extent of induced demand, CBO examined three separate groups of Medicare enrollees. The first group consists of the 40 percent of enrollees who already have far more generous insurance

coverage of prescription drugs than the CDI program will provide. They will have little reason to increase their use of prescription drugs because the program will not reduce their out-of-pocket costs.

For the second group--another 40 percent of enrollees who have supplementary insurance that pays part or all of their cost sharing for physician services but not the cost of prescription drugs--two observations are in order. First, these enrollees use more physician services than their counterparts with no supplementary coverage. Second, because use of prescription drugs is directly related to the use of physician services, most of the increase in use of prescription drugs that might be induced by insurance coverage for drugs has already been induced by supplementary insurance coverage for physician services. Thus, enrollees in this group will expand their use only modestly. CBO assumed that this increased use will be, at most, one-quarter of the estimated 7 percent increase that would occur if these enrollees were to receive coverage as comprehensive as that provided by many employer-based retiree health plans, rather than the less generous catastrophic coverage offered by the CDI program.

The remaining 20 percent of enrollees who have no supplementary coverage at all will, on average, raise their use of prescription drugs more than the members of the other two groups, but strong economic incentives will prevent any explosion of demand. For this generally lower-income group, the substantial deductible amounts and significant coinsurance rates will dampen the tendency to increase use.[9] CBO therefore assumed that the inducement effect for this group will be only one-seventh of the estimated 60 percent rise that would occur if they were to acquire both comprehensive drug coverage and supplementary coverage for physician services.

Reimbursement Limits. For single-source drugs--that is, those protected from competition by patent--the program will pay the lowest of:

- The pharmacy's actual charge;

9. The cost-sharing provisions for 1991 will be a deductible amount of $600 and a coinsurance rate of 50 percent. They will remain sizeable in 1992--a $652 deductible amount and 40 percent coinsurance rate. Although the coinsurance rate is legislated to fall to 20 percent for 1993 and beyond, the deductible amount is expected to increase sharply at the same time--to roughly $1,100.

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- The average wholesale price (AWP) per unit, times the number of tablets or other units, plus a dispensing fee; or

- The 90th percentile of charges for the drug, adjusted for the number of units.

For multiple-source drugs--that is, those for which there are therapeutically equivalent brand-name or generic substitutes--the rules for single-source drugs will apply if the physician certifies in writing that a specific brand is "medically necessary." Otherwise, reimbursement will be made at the lesser of:

- The pharmacy's actual charge; or

- The median AWP per unit for all drugs of this type regardless of manufacturer, times the number of units, plus a dispensing fee.

The median AWP will reflect the charges of the manufacturer whose AWP is in the middle of the distribution of AWPs--in practice, almost always a manufacturer of a generic substitute. For both single-source and multiple-source drugs, the dispensing fee used with the AWP limit will be $4.50 for participating pharmacies and $2.50 for nonparticipating pharmacies in 1991. These fees will be indexed in future years.

CBO estimated that the CDI program's reimbursement methods will reduce program outlays by about 10 percent compared with what would otherwise occur. The reimbursement rules were simulated using a large computer file of pharmacy records of individual prescriptions sold to the elderly during calendar year 1988. By itself, the percentile limit for single-source drugs will save less than 1 percent. In combination, however, the percentile and the AWP limits will save 1.5 percent of charges for high-volume drugs, and 4.7 percent of charges for low-volume drugs, that have only a single source.

Much larger savings will result from the incentive to substitute generic for brand-name drugs when multiple sources are available, because generic substitutes are almost always less expensive. If all possible substitutions occur, for example, the reimbursement methods will reduce outlays for multiple-source drugs by 18.6 percent, compared with only 3.5 percent if there is no substitution. (In the latter

case, only the percentile and AWP limits will apply.) CBO assumed that 90 percent of the possible substitutions of generic for brand-name drugs will actually take place, lowering outlays for multiple-source drugs by 17 percent from what otherwise would occur.

Another possible step in estimating the savings from the reimbursement limits would have been to incorporate some inflation in prices to reflect the increases that may take place as pharmacies anticipate and then become subject to the limits. Such inflation has been apparent under Medicare's system for reimbursing physicians, which has used a similar method for determining payments. But CBO concluded that competition among pharmacies will be strong enough to counter any similar tendencies in the case of prescription drugs.

Other Adjustments. CBO also incorporated several smaller adjustments into its estimate. One adjustment added the cost of covering immunosuppressive drugs and drugs administered intravenously at home. Another reflected the possibility that some shifts from over-the-counter drugs to prescription drugs may occur. A third adjustment was made because Medicare may be charged for some drugs that would have been provided free in the absence of the CDI program. Finally, CBO assumed that a small proportion of the potential claims will never be filed with the program. The net result of all these adjustments was a 5 percent increase in the projected amount of spending that will exceed the deductible amount.

Program Administration

CBO divided administrative costs into three categories. The first category includes the start-up costs incurred by pharmacies and regional processors of prescription drug bills, as well as expenses for providing information to beneficiaries and providers about the new benefits. Such expenses will amount to about $65 million in calendar year 1991. The continuing costs of administering the program--the second category--are projected to be about $90 million in 1991 and to total about $375 million over the 1991-1994 period. Finally, costs associated with processing the claims are expected to be about $595 million in 1991 and to total $2.8 billion through 1994.

The final step in estimating outlays was to apportion the spending that will be incurred in a calendar year between the two fiscal years with which the calendar year overlaps. CBO assumed that enrollees using prescription drugs to treat chronic conditions will incur costs evenly throughout the year. CBO further assumed that, each month, approximately the same number of enrollees will experience acute conditions that require the use of prescription drugs. Based on the resulting even pattern of expenses throughout the calendar year, the requirement to exceed a deductible amount, and a three-week interval between the time a prescription is filled and the time the pharmacy is reimbursed, CBO determined that only about half of the reimbursements for prescriptions filled in a calendar year will occur by the end of September--that is, by the end of the fiscal year. Thus, half of the outlays related to the use of prescription drugs during a calendar year were estimated to occur in the same fiscal year, and half in the next fiscal year.

Flat Premium

Because the act specifies the dollar amount of the flat premium that each SMI/CDI enrollee must pay for each year through 1993, the only information required to estimate receipts from the flat premium in the early years of the program was the number of enrollees. Once that was determined, CBO estimated receipts by multiplying the number of enrollees by the per-person annual premium. For 1994, the act specifies a procedure for calculating the monthly premium amount. Because the contingency margin projected for 1992 was less than the one specified in the act (-55 percent rather than 75 percent), the percentage increase in the premium needed to eliminate the 1992 shortfall was calculated. It was then applied to the 1993 premium to determine the 1994 premium amount.

Income-Related Premium

Estimating receipts from the income-related premium required information on the incomes and federal income tax liabilities of people eligible for HI. Because the premium is structured as a surtax on individual income tax liability, CBO estimated receipts from the premium with the same general procedures it uses to project income tax

revenues. Recent historical data on the taxpaying population were used to project incomes and characteristics of taxpayers in future years. Regular tax liability was then computed, taxpayers subject to the premium were identified, and the amount of premium due was calculated. Finally, an adjustment reflecting the expected timing of payments was made.

UNCERTAINTY REGARDING THE ESTIMATES

Considerable uncertainty is inherent in estimating the cost of the CDI program. It arises from two factors--the need to make numerous assumptions, and the lack of relevant data to guide those choices. This section illustrates this uncertainty by showing how CBO's estimates of outlays would change if alternative assumptions were made. Factors that explain why there is somewhat less uncertainty about estimated receipts are also described.

Estimates of underreporting in household surveys vary considerably, depending on the topic of the questions, the survey methods, and the characteristics of the respondents. If use of, and spending on, prescription drugs for enrollees were reported without error in the 1987 NMES, CBO's estimated outlays for the 1990-1994 period would be reduced by $1.8 billion, or 10 percent, from the current estimate of $17.2 billion (see Table 5). On the other hand, if underreporting were 20 percent--that is, twice the level CBO assumed--the five-year cost of the program would be $1.8 billion greater than was actually estimated.

Not only are historical trends often poor predictors of future trends, but projecting the growth in spending for prescription drugs is also made more difficult by having to base the trend on data from only a few years. If the average annual growth in spending for prescription drugs between 1987 and 1994 were two percentage points less than CBO assumed--that is, if it were 10 percent a year--the program's five-year cost would be $1.7 billion, or about 10 percent, lower than the current estimate. If annual growth in spending were to average two percentage points more than was assumed, however, the program's cost would be higher by about the same magnitude. Using the 8 percent annual growth rate assumed in the Administration's May 1989 estimates would reduce CBO's 1990-1994 estimate by $3.4 billion, or 20 percent.

It is generally thought that providing insurance coverage will induce additional spending on the insured good or service, but the precise magnitude of the response to any particular change is uncertain. This uncertainty is particularly great when, as with the CDI program, the cost-sharing provisions will require enrollees to pay much more than

TABLE 5. SENSITIVITY OF ESTIMATED OUTLAYS FOR THE CATASTROPHIC DRUG INSURANCE PROGRAM TO ILLUSTRATIVE CHANGES IN ASSUMPTIONS

Assumption	Effect on Fiscal Year 1990-1994 Outlays (Billions of dollars)	Change (Percent)
Underreporting in the 1987 National Medical Expenditure Survey		
None	-1.8	-10
10 Percent[a]	0	0
20 Percent	1.8	11
Average Annual Growth in Spending for Prescription Drugs, 1987-1994		
10 Percent	-1.7	-10
12 Percent[a]	0	0
14 Percent	1.8	11
Induced Demand[b]		
None	-0.5	-3
4 Percent[a]	0	0
8 Percent	0.5	3
Savings from the Reimbursement Methods		
5 Percent	-0.7	-4
10 Percent[a]	0	0
15 Percent	0.7	4

SOURCE: Congressional Budget Office estimates.

a. CBO's current estimates of the cost of the CDI program were based on this assumption.

b. "Induced demand" refers to the percentage increase in spending for enrollees' prescription drugs that will exceed the program's deductible amount that will occur as a result of the coverage provided by the CDI program.

under existing plans. If there were no induced demand, rather than the 4 percent assumed by CBO, the program's costs would fall $0.5 billion, or 3 percent, below the actual estimate. Doubling the extent of induced demand would add $0.5 billion to the five-year estimate. Using the Administration's much higher assumption--induced demand of 30 percent--would raise projected five-year costs $3.7 billion, or 21 percent, over CBO's current estimate.

The reimbursement provisions of the CDI program were designed to pay less for prescription drugs than pharmacies would charge if there were no limits on payments and no incentives to substitute generic for brand-name drugs. But uncertainty surrounds both the maximum amount that these provisions might save and the possibility that potential savings might be offset, at least in part, by the compensating behavior of pharmacies and drug manufacturers. If CBO had assumed that the savings from the reimbursement methods would be five percentage points lower or higher, the program's estimated five-year cost would be about $0.7 billion higher or lower, respectively.

The estimates of administrative costs are also uncertain. First, the cost of administering the program depends critically on the number of prescriptions, an estimate that is itself subject to uncertainty. Second, only limited information is available on the potential cost of processing each claim and on the cost of setting up the data processing operation. No similar system of a comparable magnitude exists on which to base estimates. On the other hand, if administrative costs were 33 percent higher or lower than estimated, total expenditures would rise or fall by only about 6 percent, because administrative costs make up 18 percent of estimated total outlays of the CDI program.

Although substantial revisions of estimated receipts for the CDI program are not expected, receipts from the income-related premium are also subject to uncertainties of three principal types. The first derives from the need to project incomes into the future. Detailed income tax data are available only with a three-year lag, further compounding the problem. Second, these data imperfectly identify Medicare enrollees. Third, the collection of revenues and their allocation to the trust fund further depends on the timing of individuals' payments to the Treasury, over which taxpayers have some discretion in cases such as the income-related premium. Different payment patterns produce considerably different cumulative receipts over any fixed number of

years, such as over the 1990-1994 period. The need to estimate this pattern in the absence of experience with the premium also contributes to the uncertainty of the estimates.

CHAPTER II

COMPARING CBO'S CURRENT ESTIMATES WITH EARLIER CBO ESTIMATES AND WITH THE ADMINISTRATION'S ESTIMATES

This chapter compares CBO's current estimates of outlays and receipts under Medicare's Catastrophic Drug Insurance program with the ones prepared when the bill was enacted in June 1988, and with those released by CBO in February 1989.[1] It then compares CBO's current estimates with the Administration's May 1989 estimates. The discussion focuses on the factors that contributed to the change in CBO's estimates and on the aspects in which the CBO's and the Administration's estimating methods differ.

COMPARISON WITH PREVIOUS CBO ESTIMATES

In June 1988, receipts for the CDI program were estimated to total $7.5 billion for the 1990-1993 period, compared with expected outlays of $5.7 billion (see Table 6).[2] In February 1989, CBO projected that receipts would be considerably higher--$8.3 billion over the four-year period--but that outlays would be only slightly higher than the June 1988 estimates. Based on newly available information from the National Medical Expenditure Survey, CBO has now substantially raised its estimates of outlays for both benefits and administrative costs to a total of $11.8 billion for the 1990-1993 period. Although receipts are also expected to be somewhat higher, CBO now projects that outlays for the CDI program will exceed its receipts by $2.7 billion over the four years.

1. The current estimates were released in July 1989. They were also incorporated in CBO, *The Economic and Budget Outlook: An Update* (August 1989).

2. This comparison covers 1990 through 1993, the period for which estimates were originally prepared in June 1988.

TABLE 6. COMPARISON OF CBO'S ESTIMATES OF OUTLAYS AND RECEIPTS OF THE CATASTROPHIC DRUG INSURANCE PROGRAM (By fiscal year, in billions of dollars)

Date of CBO Estimate	1990	1991	1992	1993	Four-Year Total
Outlays					
Benefits					
June 1988	a	0.8	1.6	2.5	4.9
February 1989	a	0.8	1.6	2.4	4.8
July 1989	0.1	1.6	3.7	4.3	9.6
Administrative Costs					
June 1988	0.1	0.2	0.2	0.3	0.8
February 1989	0.1	0.2	0.3	0.4	1.1
July 1989	0.1	0.5	0.7	0.8	2.2
Total					
June 1988	0.1	0.9	1.9	2.7	5.7
February 1989	0.1	1.0	1.9	2.8	5.9
July 1989	0.2	2.2	4.4	5.1	11.8
Receipts					
Income-Related Premium					
June 1988	0.4	1.3	1.3	1.7	4.7
February 1989	0.5	1.6	1.6	1.9	5.5
July 1989	0.8	1.8	1.6	2.1	6.3
Flat Premium[b]					
June 1988	a	0.6	1.0	1.2	2.8
February 1989	a	0.6	1.0	1.2	2.8
July 1989	a	0.6	1.0	1.2	2.8
Total					
June 1988	0.4	1.9	2.3	2.9	7.5
February 1989	0.5	2.2	2.5	3.1	8.3
July 1989	0.8	2.4	2.6	3.3	9.1
Outlays Less Receipts[c]					
June 1988	-0.3	-0.9	-0.4	-0.2	-1.8
February 1989	-0.4	-1.2	-0.6	-0.3	-2.4
July 1989	-0.7	-0.2	1.8	1.7	2.7

SOURCE: Congressional Budget Office estimates.

a. Less than $50 million.

b. Receipts from the flat premium are shown as an offsetting receipt (that is, a negative outlay) in budget documents.

c. These amounts do not represent the effect on the federal budget deficit because they do not take into account offsetting changes in outlays for other programs such as Medicaid.

Outlays

Several factors contributed to the increase in estimated outlays for the CDI program. The NMES indicated that both the average number of prescriptions used by enrollees and their average price had risen more by 1987 than CBO had projected based on data from the 1970s and early 1980s. Consequently, the 1987 base for the projections was raised from the level assumed in June 1988. Moreover, based on the 1980-1987 experience, CBO raised the growth rate for spending on prescription drugs for enrollees in years after 1987. Finally, estimated administrative costs were raised, primarily because of the larger projected number of claims to be processed.

Data from the NMES allowed CBO to anchor its estimates in 1987, instead of having to project spending from 1980, as had been necessary earlier. The previous estimates assumed that prescription drug spending per enrollee would grow about 10 percent a year through 1987. This rate was based on a comparison of surveys administered in 1977 and 1980 and was about twice the rate of general price inflation during the 1980-1987 period.[3] Using these assumptions, CBO estimated that average spending per enrollee was $241 in 1987. The NMES data, adjusted for assumed underreporting and higher spending for institutionalized enrollees, now indicate that average spending per enrollee was actually $305 in 1987, or 27 percent more than CBO's earlier estimate (see Figure 1).

A comparison of the 1987 NMES with comparable data from the 1980 National Medical Care Utilization and Expenditure Survey (NMCUES) indicated that spending per enrollee grew by more than 14 percent a year between 1980 and 1987, rather than at the 10 percent rate that was assumed for the June 1988 and February 1989 estimates. The faster growth indicated not only that the earlier projections underestimated what happened historically, but also that the rate of increase for future spending should be increased from the 8 percent annual rate that was used for the earlier estimates. The current esti-

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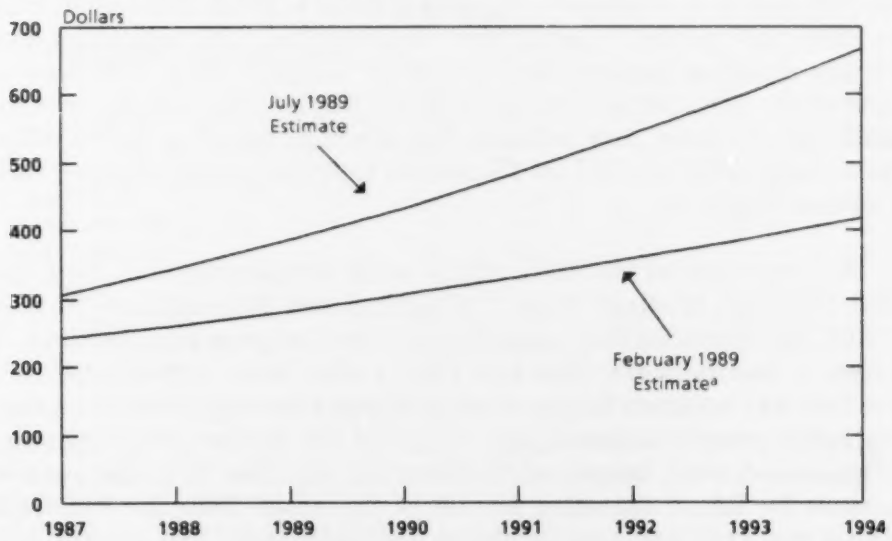
3. Although another source of information on spending for prescription drugs--the Consumer Expenditure Survey (CES)--uses different techniques than the 1977 National Medical Care Expenditure Survey and the 1980 National Medical Care Utilization and Expenditure Survey, projected spending for 1984 was generally consistent with information from the 1984 CES.

mates, which are also shown in Figure 1, assumed an annual rate of growth of about 12 percent.

As a result of both the higher 1987 base and the faster projected growth, estimated spending per enrollee in 1991 rose from $333 estimated in February 1989 to $483 estimated in July 1989 (a 45 percent increase). Estimated spending for 1994 rose from $420 to $670 (a 60 percent increase). Figure 2 shows that this considerably larger average spending had an even more dramatic effect on spending over the deductible amount of $600 in 1991. The area under the dotted line represents total spending as estimated in July 1989; the portion of this area that is also to the right of the vertical line at $600 represents

Figure 1.
Comparison of CBO's February 1989 and July 1989 Estimates of Prescription Drug Spending per Medicare Enrollee, Calendar Years 1987-1994



SOURCE: Congressional Budget Office estimates

a. The levels of spending per enrollee estimated in June 1988 were essentially the same as those estimated in February 1989.

Figure 2.
Distribution of Medicare Enrollees With Prescription Drug Spending at Specified Levels, Calendar Year 1991

SOURCE: Congressional Budget Office tabulations.

NOTE: Because it is not possible to show the small number of enrollees with exceptionally high spending in a graph such as this, the figure omits the 1 percent of enrollees with the highest spending.

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spending over the deductible amount. Similar interpretations apply to the areas under the solid line, which is based on the February 1989 estimates. Thus, the fact that the area under the dotted line to the right of the vertical line is more than twice the corresponding area under the solid line indicates that estimated spending over the deductible amount more than doubled between the February and the July estimates. In particular, it increased 111 percent, compared with the 45 percent increase in average spending. The same phenomenon will occur for 1992, because the deductible amount was also set in law. It will not occur in subsequent years, however, when the deductible amount will be much larger because it will be set so that 16.8 percent of enrollees will be eligible for partial reimbursement of spending for their prescription drugs.

The 1980-1987 rise in spending per enrollee reflected much faster growth in the average number of prescriptions used than had been assumed earlier, as well as greater inflation in prescription drug prices. Even though the current estimates assumed that the growth in number of prescriptions observed in the 1980-1987 period will gradually slow, claims volume is now projected to be substantially higher than previously estimated. This larger volume of claims was primarily responsible for the increase in estimated administrative costs.

A number of other adjustments, when taken together, increased estimated outlays by about 4 percent. These adjustments included higher projected costs for institutionalized enrollees, a slight increase in CBO's estimate of induced demand, and a rise in the percentage of eligible claims assumed to be processed under the electronic point-of-sale system. However, none of these other adjustments, which can be thought of as having one-time effects, was nearly as important quantitatively as the impact of raising the annual rate of increase in spending by about four percentage points, and then compounding it over more than a decade, from 1980 to the 1991-1994 period.

Receipts

Revised estimates of the income-related premium accounted for almost all of the increase in estimated receipts. Two factors accounted for virtually all of this revision. First, CBO's February 1989 estimates were based on data reflecting incomes for elderly taxpayers that were

higher than those in the information used by the Joint Committee on Taxation to generate the June 1988 estimates of receipts. This change raised receipts over five years by $0.8 billion compared with the original estimate.

Second, taxpayers are now expected to pay the premium more quickly than CBO expected in June 1988 or February 1989. In the original estimates of the MCCA and in CBO's and the Administration's initial estimates after its passage, it was assumed that the Treasury would receive only 10 percent of the liabilities for the 1989 calendar year premium in fiscal year 1989. Beginning in 1990, only 30 percent of each year's liabilities were assumed to be paid in the same fiscal year. Last January, the Administration assumed that revenue would be received more quickly. Because CBO has concluded that the Administration's revised assumptions are more realistic, and because their estimates will be used to determine the balance in the CDI trust fund, CBO's current estimates incorporated the new timing assumptions described above. Differences between the economic forecast released in August 1989 and that released in February had little effect on the estimates.

As a result of both factors, CBO now expects receipts to total $9.1 billion over the 1990-1993 period, compared with the $8.3 billion it estimated in February. The Joint Committee on Taxation has also adopted these changes.

COMPARISON WITH THE ADMINISTRATION'S ESTIMATES

CBO's current estimates of receipts of the CDI program and those published by the Administration in May 1989 differ by only 2 percent over the 1990-1993 period. In contrast, CBO's estimate of benefits paid over the same period is 12 percent higher than the Administration's estimate--$9.6 billion compared with $8.6 billion (see Table 7).[4] This $1 billion higher estimate represents a substantial change from the relationship between CBO's and the Administration's estimates when the

4. The Administration has not released its estimate of administrative costs for CDI, so the comparison in this section is limited to total receipts and outlays for benefits.

MCCA was passed. At that time, CBO estimated benefits to be only about two-thirds of the Administration's projection.

The greater similarity of CBO's and the Administration's current estimates of benefits masks important underlying disagreements, however. As a result, the cost of the CDI program is still surrounded by

TABLE 7. COMPARISON OF CBO'S AND THE ADMINISTRATION'S ESTIMATES OF OUTLAYS AND RECEIPTS OF THE CATASTROPHIC DRUG INSURANCE PROGRAM
(By fiscal year, in billions of dollars)

Source of Estimate	1990	1991	1992	1993	Four-Year Total
Outlays for Benefits					
CBO	0.1	1.6	3.7	4.3	9.6
Administration	0.1	1.3	3.3	3.9	8.6
Receipts					
Income-Related Premium					
CBO	0.8	1.8	1.6	2.1	6.3
Administration	0.8	1.8	1.7	2.1	6.4
Flat Premium[a]					
CBO	b	0.6	1.0	1.2	2.8
Administration	b	0.6	1.0	1.3	2.9
Total					
CBO	0.8	2.4	2.6	3.3	9.1
Administration	0.8	2.4	2.7	3.4	9.3

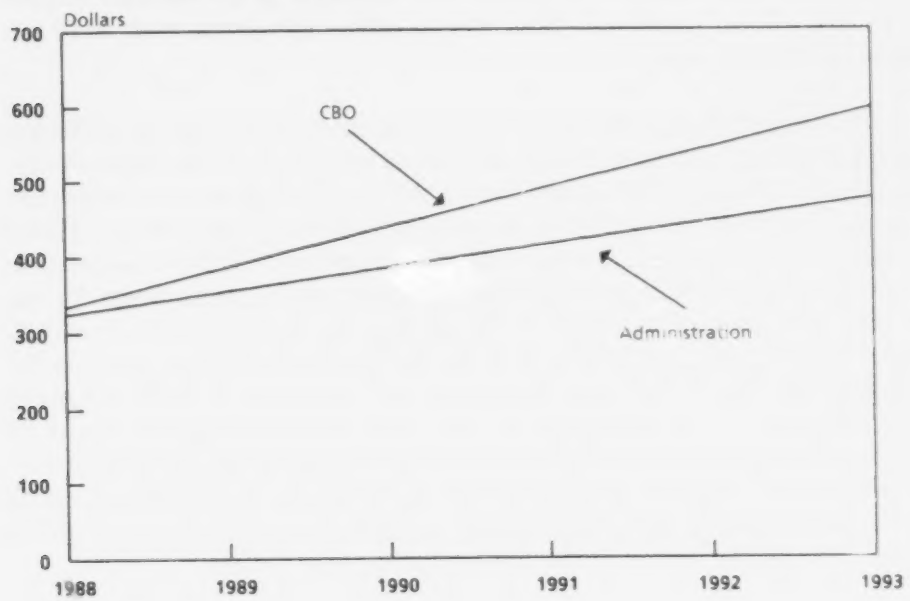
SOURCES: Congressional Budget Office estimates; and Department of Health and Human Services, *Report to Congress: Expenses Incurred by Medicare Beneficiaries for Prescription Drugs* (May 1989), p. 39.

NOTE: The Administration has not released its estimate of administrative costs for the Catastrophic Drug Insurance program, so this comparison is limited to outlays for benefits and total receipts. No net effect is shown, because receipts are intended to finance benefits and administrative costs; to calculate a net effect would overstate any surplus or understate any shortfall.

a. Receipts from the flat premium are shown as an offsetting receipt (that is, a negative outlay) in budget documents.

b. Less than $50 million.

Figure 3.
Comparison of CBO's and the Administration's Estimates of Prescription Drug Spending per Medicare Enrollee, Calendar Years 1988-1993



SOURCES: Congressional Budget Office estimates; and Department of Health and Human Services, *Report to Congress: Expenses Incurred by Medicare Beneficiaries for Prescription Drugs* (May 1989).

considerable uncertainty. The two aspects of the estimate that remain most in contention are the assumptions about the future growth of spending for enrollees' prescription drugs and the degree of induced demand that the CDI program will stimulate.

CBO and the Administration differ considerably in their projections of the rate at which average spending on prescription drugs for Medicare enrollees will grow in the future. Figure 3 illustrates this point by showing the respective estimates for 1988 through 1993.[5] Although CBO's estimate of $343 in 1988 exceeds the Administration's estimate of $325 by only 6 percent, CBO's assumed growth rate, as

5. The Administration assumed that the number of prescriptions per enrollee will grow at about 1.4 percent a year and that the price per prescription will grow at about 6.5 percent a year.

explained above, averages about 12 percent annually over the projection period compared with the Administration's assumption of about 8 percent a year. Because these differences compound when projected to 1993, CBO's estimate of spending per enrollee is 26 percent higher than the Administration's--$602 per enrollee compared with $479 per enrollee in that year.

By happenstance, the impact on estimated outlays of the different assumptions about induced demand made by CBO and the Administration is of the same magnitude, but in the opposite direction, as the impact arising from the different assumptions about growth rates. Based on analyses of the NMES described in Chapter III, CBO estimates that the CDI program will increase spending on prescription drugs for enrollees that exceeds the deductible amount by 4 percent. In contrast, based on actuarial judgment, the Administration projects induced demand of roughly 30 percent. As shown in Chapter I, if CBO had made this assumption, its estimates of the costs of CDI would be about 21 percent higher over the 1990-1994 period than in its current projections. Alternatively, combining CBO's estimate of induced demand with the Administration's projected growth in spending would cause projected costs to be 20 percent lower during that period.

PART II: METHODOLOGY FOR ESTIMATING OUTLAYS AND RECEIPTS OF THE CATASTROPHIC DRUG INSURANCE PROGRAM

CHAPTER III

OUTLAYS

Part II of this report elaborates on the Congressional Budget Office's (CBO's) current estimating methodology for Medicare's Catastrophic Drug Insurance (CDI) program, which was summarized in Chapter I. The remainder of this chapter describes how CBO estimated outlays; Chapter IV focuses on receipts.

BASELINE SPENDING AND ITS PROJECTED GROWTH

As mentioned in Part I, to estimate the cost of the CDI program, one must project both the average level and the distribution of spending on prescription drugs for enrollees in future years. This section first describes how CBO estimated spending on prescription drugs for Medicare enrollees in 1987, the base year. It then discusses the basis for projecting spending in 1991 through 1994.

The Level and Distribution of Spending on Prescription Drugs in 1987

CBO used data from the 1987 National Medical Expenditure Survey (NMES) as the foundation for its estimates.[1] This survey of a nationally representative sample of the noninstitutionalized population provides data on the annual use of, and spending for, health care services and commodities (including prescription drugs) and background information about insurance coverage, health status, and other characteristics of the respondents. The data, which provide estimates for calendar year 1987, were collected in five separate interviews during 1987 and early 1988. Participants in the survey used calendars and other recall aids to improve the accuracy of responses about health care

1. For a thorough description of the sample, the questions, and tabulations of the data, see Department of Health and Human Services, *Report to Congress: Expenses Incurred by Medicare Beneficiaries for Prescription Drugs* (May 1989), Appendix 5.

events. Nonetheless, because expenditures are generally underreported in surveys, CBO adjusted reported spending upward by 10 percent.[2]

CBO estimated separate distributions of spending on prescription drugs for two populations of aged and disabled Medicare enrollees--those living in the community and those living in institutions such as nursing homes. The 1987 distribution of spending on prescription drugs for noninstitutionalized enrollees was based on data from the NMES. For people who enrolled in Medicare during the year, the data on prescription drugs were edited by the Department of Health and Human Services (HHS) to reflect only expenses incurred in the period of enrollment. No such adjustment to reported expenditures was needed for enrollees who died during the year. Part-year respondents who became institutionalized during the survey year were excluded, however, because they were accounted for in the estimate of spending for institutionalized enrollees that is described next.

There is no suitable nationally representative source of data about the distribution of spending on prescription drugs for Medicare enrollees who are institutionalized. Consequently, CBO simulated spending based on use by a population who could be considered similar to the institutionalized--namely, noninstitutionalized people who were unable to perform a number of activities of daily living (ADL). NMES data were used to estimate spending patterns for 10 noninstitutionalized population groups with ADL limitations. These groups, defined separately for men and women, reflected the number of ADLs

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2. The Department of Health and Human Services (HHS) reported the findings of validity checks on estimates of quantities and prices of prescription drugs that were based on NMES data in its May 1989 report (*Report to Congress*, Appendix 5). With respect to use, HHS concluded that despite "an overall underreporting rate in NMES of approximately 20 percent," there "appears to be no consistent underreporting of prescriptions for the Medicare population." Comparisons of charges reported in NMES with those recorded by pharmacies across the nation suggested that "there is no evidence of charges in NMES being consistently lower or higher than those reported by [pharmacies]."

   The conclusions of HHS were, however, based largely on comparisons with administrative data that were not specific to the Medicare population. In contrast, CBO concluded that the data necessary for convincing validity checks do not currently exist. Moreover, the underreporting rates in other household surveys are substantial. Even Social Security benefits, which are received monthly and generally remain constant throughout the year, are underreported by about 8 percent in the Current Population Survey. Spending on prescription drugs by all households is underreported by about 20 percent to 25 percent in the Consumer Expenditure Survey. Consequently, CBO concluded that an adjustment for underreporting was necessary.

TABLE 8. SPENDING ON PRESCRIPTION DRUGS FOR NONINSTITUTIONALIZED AND INSTITUTIONALIZED MEDICARE ENROLLEES, CALENDAR YEAR 1987

	Enrollees		
	Noninstitutionalized	Institutionalized	All Enrollees
Number of Enrollees (In millions)	29.9	1.2	31.1
Average Spending (In dollars)	289	681	304
Total Spending (In billions of dollars)	8.6	0.8	9.4

SOURCE: Congressional Budget Office estimates based on preliminary data from the 1987 National Medical Expenditure Survey and administrative data.

(from one to five) that the enrollee was unable to perform. The simulation assumed that the average level and the distribution of spending on prescription drugs for institutionalized enrollees in each of the 10 groups would be the same as for the group of noninstitutionalized enrollees of the same sex with the same number of ADL limitations. The 1985 National Nursing Home Survey (NNHS) was tabulated to identify the prevalence of ADL limitations in the institutionalized population.

The total number of enrollees in 1987--31.1 million--was drawn from administrative data (see Table 8).[3] CBO estimated the number of enrollees who were institutionalized by using the NNHS to determine the number who were in a nursing home at any time during the year. This figure was then reduced by the number of enrollees who, according to Medicare claims data, had short stays in skilled nursing facilities after being hospitalized.

3. This enrollment total of 31.1 million is less than the 31.8 million figure reported in NMES, despite the fact that the latter figure only refers to the noninstitutionalized population. This apparent discrepancy is explained by the fact that the estimates refer to different time periods. The CBO estimate is for the number of Medicare enrollees at a particular point in time, whereas the NMES figure refers to people enrolled at any time during the year. Because of turnover resulting from new enrollments and deaths, more people are enrolled at some time during the year than are enrolled at any particular point in time.

Combining information from the NMES and administrative records yielded an estimated $9.4 billion of total spending on prescription drugs for enrollees in 1987. This amount represented an average of $289 for the 29.9 million noninstitutionalized enrollees and an average of $681 for the 1.2 million institutionalized enrollees.

Projected Spending on Prescription Drugs Through 1994

CBO used historical trends to project the growth in spending on prescription drugs between 1987 and 1994, the end of the projection period. The most significant trend was the growth in expenditures per enrollee that took place between 1980 and 1987, which was calculated by comparing the 1987 NMES with the 1980 National Medical Care Utilization and Expenditure Survey (NMCUES).[4]

This comparison showed that average spending for noninstitutionalized enrollees grew at an average annual rate of 14.4 percent--or by a total of 157 percent--over the 1980-1987 period. This increase resulted, in part, because the average number of prescriptions per enrollee rose by 2.7 percentage points a year. In addition, during the 1980-1987 period, the prescription drug component of the consumer price index rose, on average, 9.9 percentage points a year, or about 1.7 percentage points faster than the annual increase in the medical services component of the consumer price index (CPI-M). By 1988, however, the differential had fallen to 1.5 percentage points. Finally, additional growth that averaged about 1.4 percentage points a year apparently stemmed from other factors such as the changing mix of prescription drugs used by enrollees.[5]

For its current projections through 1994, CBO assumed that spending per enrollee would rise, on average, 12.0 percent a year for both noninstitutionalized and institutionalized enrollees. More spe-

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4. An examination of the survey instruments, the recall aids, and the frequency and style of interviewing suggests that the degree of underreporting in these two surveys was similar. A comparison of them was therefore expected to provide a reliable estimate of the rate of growth of spending for the period between 1980 and 1987.

5. Such a breakdown is multiplicative. In other words, the average annual rate of increase (1.144) equals (1.027) (1.099) (1.014).

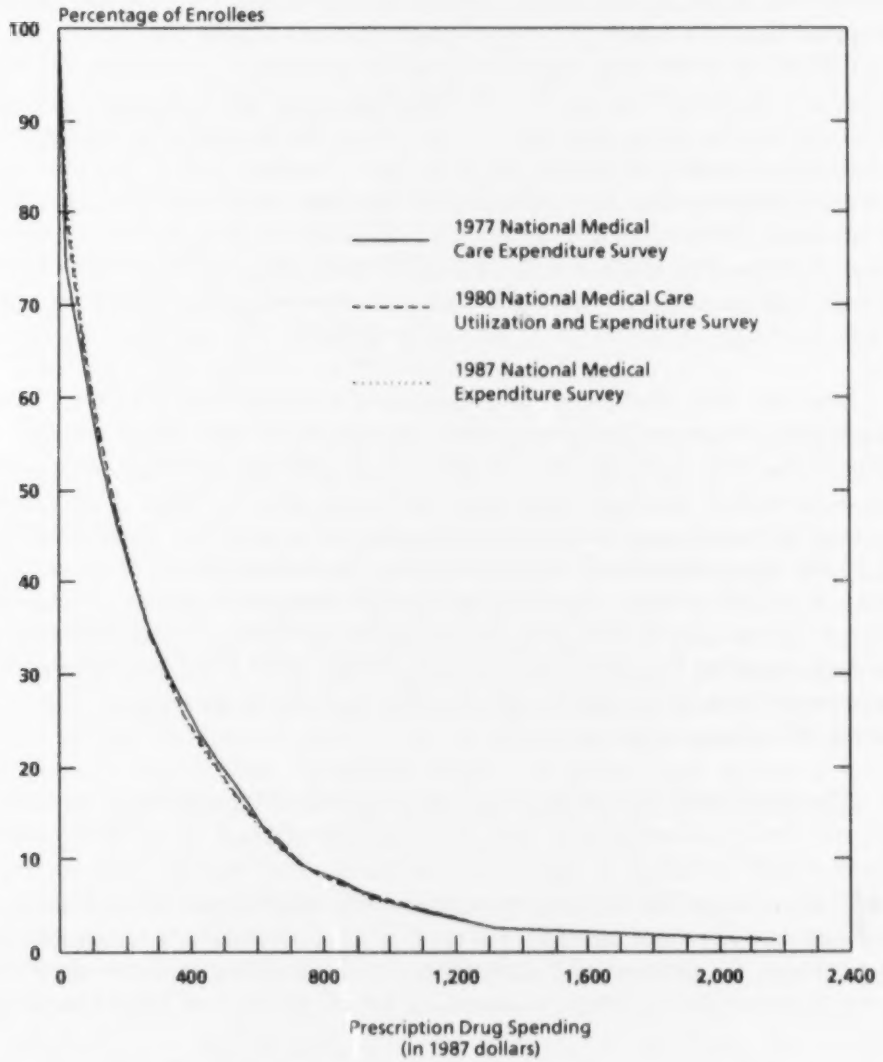
cifically, CBO assumed that growth in the average number of prescriptions used by enrollees would continue, but at gradually slowing rates. Thus, the annual rate of increase in use falls from 2.7 percent (the 1980s' average rate) at the beginning of the projection period to 2.0 percent (as experienced in the 1970s) by the end of the period. CBO assumed that the average price of prescriptions would rise faster than the CPI-M, but that the differential would continue to decline, falling from its actual 1988 level of 1.5 percentage points to 1.0 percentage point during the projection period, to reflect the growing use of generic substitutes instead of brand-name drugs. Consequently, the average price per prescription was projected to increase about 8 percent a year, on average, between 1987 and 1994. Finally, growth resulting from other factors was assumed to fall gradually during the 1987-1994 period from an annual rate of 1.4 percentage points to 1.0 percentage point.

Because the Medicare Catastrophic Coverage Act (MCCA) will reimburse expenses for prescription drugs only after they exceed a large deductible amount, one must project both the average level and the distribution of these expenses in future years. Data from three surveys of the noninstitutionalized population conducted between 1977 and 1987 suggested that, after correcting for differences in the average level, the distribution of spending did not change much from year to year, as shown in Figure 4.[6] Consequently, CBO increased spending for each enrollee from the levels shown in the 1987 NMES by the same rate, regardless of the initial level of the enrollee's spending, to obtain the distributions in future years.

The resulting distributions of prescription drug spending in 1991, for noninstitutionalized and institutionalized enrollees, are summarized in Table 9. About 26 percent of the noninstitutionalized enrollees will use $600 or more of prescription drugs in 1991, but they will account for more than 70 percent of total spending for this group. In contrast, 53 percent of institutionalized enrollees will use $600 or more of prescription drugs, accounting for 90 percent of total spending

6. The three surveys were the 1977 National Medical Care Expenditure Survey (NMCES), the 1980 NMCUES, and the 1987 NMES. The data from NMCES and NMCUES have been standardized to an average expenditure of $262 per enrollee--the average reported in the NMES--to facilitate the comparison.

Figure 4.
Distribution of Medicare Enrollees With Prescription Drug Spending At or Above Specified Levels, Calendar Years 1977, 1980, and 1987



SOURCE: Congressional Budget Office tabulations.

NOTE: Data from 1977 and 1980 have been standardized to the average expenditure in the 1987 data to facilitate comparison.

TABLE 9. DISTRIBUTION OF SPENDING ON PRESCRIPTION DRUGS FOR NONINSTITUTIONALIZED AND INSTITUTIONALIZED MEDICARE ENROLLEES, CALENDAR YEAR 1991

Spending Categories	Percentage of Enrollees	Percentage of Spending	Percentage of Spending Over $600
Noninstitutionalized Enrollees			
$0	18	0	0
$1 - $299	37	10	0
$300 - $599	19	18	0
$600 - $899	10	16	8
$900 - $1,199	6	14	15
$1,200 and Above	10	43	77
Total	100	100	100
Institutionalized Enrollees			
$0	6	0	0
$1 - $299	24	3	0
$300 - $599	19	7	0
$600 - $899	9	6	2
$900 - $1,199	13	12	9
$1,200 and Above	31	72	89
Total	100	100	100
All Enrollees			
$0	18	0	0
$1 - $299	36	9	0
$300 - $599	19	17	0
$600 - $899	10	15	7
$900 - $1,199	6	14	15
$1,200 and Above	11	45	78
Total	100	100	100

SOURCE: Congressional Budget Office estimates based on preliminary data from the 1987 National Medical Expenditure Survey and on data from the 1985 National Nursing Home Survey.

NOTE: Average spending for the three groups was as follows: $460 for noninstitutionalized enrollees; $1,084 for institutionalized enrollees; and $483 for all enrollees.

for their group. Almost all of the spending that will exceed the $600 deductible amount--77 percent for noninstitutionalized enrollees and 89 percent for those who are institutionalized--will be for enrollees whose total prescription drug expenditures will exceed $1,200.

Finally, to account for growth in the total number of enrollees, CBO used its 1991-1994 projections of total enrollment in the Supplementary Medical Insurance (SMI) program. The number of institutionalized enrollees was assumed to grow from its 1987 level by 1 percent each year to reflect the relatively slow growth in the number of beds in nursing homes that occurred during the 1980s and that is expected to continue during the projection period. All other enrollees were assumed to live in the community.

THE IMPACT OF THE COST-SHARING PROVISIONS

Once total spending on prescription drugs and its distribution have been projected, the next step is to calculate the portion of total spending that would qualify for reimbursement from Medicare before taking into account any changes in behavior that the CDI program will generate or any reductions in cost from the act's reimbursement limits. These two effects, which were incorporated as separate adjustments, are described in the next two sections.

The share of total spending that would be eligible for reimbursement from Medicare will vary from year to year, depending on the cost-sharing provisions of the CDI program that were described in Table 1. Box 2 illustrates the steps CBO took in calculating the total amount that would be eligible for reimbursement using the cost-sharing provisions for 1991, the first full year of the CDI program. First, CBO's projected total spending of $16.2 billion was reduced by the spending of enrollees who will fail to exceed the deductible ($4.2 billion) and by the first $600 of spending for each of those who will exceed the deductible ($5.5 billion). Thus, $6.5 billion of spending would be eligible for partial reimbursement. This amount was then cut by the amount enrollees must pay as coinsurance--50 percent in 1991, or $3.3 billion. The remaining $3.3 billion represents the spending that would qualify for payment by Medicare. A similar calculation indicates that $4.5 billion would qualify in 1992.

According to these new estimates, two important implications of the CDI cost-sharing provisions in current law are the 67 percent increase in the deductible amount for 1993--$1,092 compared with $652 a year earlier--and the corresponding drop in the amount of spending that would qualify for reimbursement. These abrupt shifts arise because newly available data show that spending on prescription drugs for enrollees will probably be quite different than CBO originally estimated based on data from the late 1970s and early 1980s.

When the Congress was considering legislation to establish the CDI program, CBO estimated that a deductible amount of $600 in 1991 would result in 16.8 percent of enrollees receiving some subsidy from

BOX 2
ILLUSTRATIVE CALCULATION OF SPENDING FOR PRESCRIPTION DRUGS THAT WOULD QUALIFY FOR REIMBURSEMENT UNDER CURRENT PATTERNS OF USE AND RELATIVE PRICES, CALENDAR YEAR 1991

Step	Calculations (Billions of dollars)
Total Spending on Prescription Drugs for Medicare Enrollees Under Current Law	16.2
Less Spending for Enrollees Who Will Not Exceed the $600 Deductible	-4.2
Less $600 Deductible for the 26 Percent of Enrollees Who Will Exceed It	-5.5
Subtotal	6.5
Less 50 Percent Coinsurance on Spending Over the Deductible	-3.3
Spending That Would Qualify for Reimbursement	3.3

SOURCE: Congressional Budget Office.

Medicare for expenditures on their prescription drugs. The NMES suggests, however, that substantially more enrollees will probably be subsidized--26.0 percent in 1991 and 26.7 percent in 1992. To achieve the legislated level of 16.8 percent of enrollees in 1993, the deductible amount will have to be set considerably higher than the $710 level originally envisioned. At the same time, as shown earlier in Table 4, providing CDI benefits to 5.9 million enrollees in 1993 compared with 9.1 million in 1992 will mean that only $5.0 billion would qualify for reimbursement in 1993, compared with $6.8 billion in 1992.

INDUCED DEMAND

CBO assumed that only a small increase in total spending on prescription drugs for enrollees, over and above the trends already evident in the 1980s, will ensue as a result of the CDI program. More specifically, CBO assumed that spending exceeding the deductible amount will grow by about 4 percent in response to the new insurance.

Because of the characteristics of the CDI program, its coverage of prescription drugs should not increase use by enrollees much. First, the program's deductible amounts are quite high. Seventy-four percent of enrollees were projected to have expenditures below $600 in 1991; this group should have little incentive to use additional or more expensive prescription drugs, since the program will not reduce their out-of-pocket expenses. Second, even enrollees who expect to exceed the deductible amount will still face substantial coinsurance rates, particularly in the early years--50 percent in 1991, for example.[7] Finally, some enrollees will have unexpectedly high expenses in the last few months of the year that will make them eligible for payments from the CDI program. They will, however, have had no incentive to increase their use of prescription drugs earlier in the year, when they had little reason to expect that they would exceed the deductible amount.

In spite of these factors, 4 percent may appear to be a surprisingly low assumption in view of past experience with rapidly rising costs

7. Although the coinsurance rate is scheduled to fall over time, the projected deductible amounts will rise much more rapidly in 1993 and beyond than will overall spending on prescription drugs. Thus, the combined effect of the cost-sharing provisions will remain strong.

under public health insurance programs and the Administration's estimate which, when expressed in comparable terms, is approximately 30 percent.[8] This section presents the reasoning and evidence supporting CBO's conclusions.

Background

Conventional wisdom holds that the act of insuring a risk leads to an increase in its likelihood of occurring, an increase in the size of the average loss, or both. This outcome, commonly called "the insurance effect," can result from a variety of behaviors. One such behavior arises when consumers increase their use of a good or service because insurance reduces their out-of-pocket costs for it. In other words, "induced demand" results from a lower effective price. Induced demand may also have indirect effects on the consumption of goods and services for which insurance coverage, if any, does not change. For example, improved insurance coverage for physician services may be accompanied by greater use of uninsured goods and services that physicians order for their patients, such as prescription drugs.

A related type of behavior can occur under insurance--namely, that providers of care, especially physicians, may alter their treatment and prescribing practices. Additional care or more expensive forms of care may be provided if physicians know that certain expenses, such as most laboratory tests, are covered by insurance.

Another important behavior that often accompanies the provision of insurance is "adverse selection." In this case, people with higher expected expenses ("adverse" risks) are more likely to enroll in an insurance plan than are those with lower expected expenses, whatever the initial premium. This behavior drives up the average costs of the plan and, therefore, premiums subsequently must be increased. But

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8. The Administration's inducement rate of 10 percent to 12 percent is defined as the percentage increase in total spending on prescription drugs for enrollees that will occur as a result of the Catastrophic Drug Insurance program. The Administration assumed, however, that this entire increase will occur among enrollees who would have exceeded the $600 deductible. To illustrate, consider the effect of this inducement rate using the figures from Box 2, above. If total spending of $16.2 billion were to increase by 12 percent, the induced demand would amount to $1.9 billion. When expressed as a percentage of the $6.5 billion of spending exceeding the $600 deductible, however, the inducement rate is 30 percent. This 30 percent increase is the comparable measure in the Administration's methodology to CBO's estimate of 4 percent.

higher premiums cause those at least risk to leave the plan, pushing up average costs still further. This phenomenon partly explains why health insurance is generally sold to groups that have been assembled for a reason unrelated to insurance, such as employees of a firm--namely, these groups are much less likely to suffer from adverse selection than ones based on the voluntary choices made by a diverse population to seek insurance.

Because all of these responses increase the average cost of providing insurance and because they generally occur simultaneously, it is difficult to distinguish among them empirically. CBO analysts examined data from a number of insurance plans and several studies from the published literature to find guidance for estimating the insurance effect of the CDI program. Unfortunately, in each case, the influence of the insurance effect could not be isolated because some other phenomenon that also increased costs occurred at the same time.

Data about per capita spending from private or public insurance plans that cover prescription drugs were of little use in calculating the insurance effect of the CDI program. First, the plans are almost always subject to some type of adverse selection. As a result, it is difficult to determine whether the observed spending is higher because of the insurance coverage, or merely because the selected population group is less healthy than an uninsured group. Second, the cost-sharing provisions of insurance plans differ from those of the CDI program. Not only is spending for prescription drugs combined with that for hospital and physician services in calculating whether or not an enrollee has exceeded the deductible amount, but also these deductible amounts are significantly less than $600.

Published studies offered no direct evidence on this subject either. Most studies examined the effect of small copayments on prescription drug use--a very different degree of cost sharing than in the CDI program. Although the RAND Health Insurance Study (HIS) examined a broader range of cost-sharing arrangements, it covered a nonelderly population, whose needs for prescription drugs differ markedly from those of Medicare enrollees.[9] Moreover, the same deductible and coin-

9. Arleen Leibowitz, Willard G. Manning, and Joseph P. Newhouse, "The Demand for Prescription Drugs as a Function of Cost-Sharing," *Social Science and Medicine*, vol. 21, no. 10 (1985), pp. 1063-1069.

surance rate applied simultaneously to all covered services, including hospital and physician services. Therefore, it was not possible to distinguish between the demand for prescription drugs that was induced by better insurance coverage of drugs and the demand for drugs that was induced as a by-product of better coverage for physician services.

Reasoning and Evidence

The reasoning behind CBO's assumption about the extent of induced demand is summarized in Box 3, which presents the arguments separately for each of three groups of Medicare enrollees. The remainder of this section discusses the evidence that supports that reasoning.

First, the use of prescription drugs is directly related to the use of physician services. For example, Medicare enrollees who saw a physician three times in 1987 used an average of about 11 prescriptions, while those who had six visits to physicians used an average of about 18 prescriptions (see Table 10). As a result, factors that stimulate the use of physician services will also tend to foster the use of prescription drugs.

Second, Medicare enrollees who have supplementary insurance that pays part or all of their cost sharing for physician services use more of these services than their counterparts with no supplementary coverage. Preliminary data from the NMES show that--after adjusting for individual differences in health status, age, and other characteristics--enrollees with individual or employer-sponsored policies had an average of 7.7 visits to physicians in 1987, compared with an average of 5.3 visits for those with no supplementary coverage (see the middle panel of Table 11). In fact, the use of physician services is essentially the same regardless of the type of supplementary insurance, once enrollees' personal characteristics have been taken into account.

Third, supplementary insurance also increases the use of and, therefore, the total amount spent for enrollees' prescription drugs. Enrollees with individual policies used an average of 15.7 prescriptions costing $267 in 1987, compared with an average of 12.0 prescriptions costing $179 for enrollees with no supplementary insurance, as shown

BOX 3
INDUCED DEMAND FOR PRESCRIPTION DRUGS UNDER THE CATASTROPHIC DRUG INSURANCE PROGRAM

Enrollee Group	Percentage of Medicare Enrollees	Reasoning About Induced Demand
Those with coverage for prescription drugs under Medicaid, state pharmaceutical assistance programs, and private retiree health insurance plans.	40	Because this group already has far more generous coverage than CDI will provide, CBO estimated that there would be no induced demand.
Those with generous coverage supplementary to Medicare for physician services, but without coverage for prescription drugs.	40	The supplementary insurance coverage of this group has already increased demand for physician services and related prescription drugs. Therefore, much of the "insurance effect" has already occurred.
Those with no supplementary coverage.	20	This group is expected to increase somewhat its aggregate demand for prescription drugs. Nonetheless, the cost-sharing provisions of the CDI program provide strong economic incentives to prevent runaway demand. This generally lower-income group is not likely to purchase "medigap" insurance that might vitiate the effects of the cost sharing, since they have not done so under previous law. Moreover, the lack of supplementary insurance and resulting lower use of physician services make these enrollees less likely to exceed the CDI deductible than other groups.

SOURCE: Congressional Budget Office.

TABLE 10. AVERAGE ANNUAL USE OF PRESCRIPTIONS BY NUMBER OF VISITS TO PHYSICIANS FOR MEDICARE ENROLLEES, CALENDAR YEAR 1987

Number of Physician Visits	Average Number of Prescriptions
0	2.5
1	5.7
2	9.1
3	10.9
4	13.2
5	16.1
6	17.8
7-9	18.7
10-14	22.6
15-19	26.7
20 and Above	31.7
All	15.3

SOURCE: Congressional Budget Office estimates based on preliminary data from the 1987 National Medical Expenditure Survey.

in the bottom panel of Table 11. This 50 percent increase in spending for prescription drugs is not, however, the result of insurance coverage for drugs.[10] Most individual supplementary policies do not cover prescription drugs, because insurers had such poor experience with adverse selection when such policies were issued in the past.[11] Instead, the 50 percent increase in prescription drug spending for those with individual policies is likely to result primarily from their 45 percent higher use of physician services (7.7 visits compared with 5.3 visits).

Finally, spending on prescription drugs for Medicare enrollees whose supplementary insurance policies generally cover drugs--pri-

10. An analysis similar to the one that follows was described in HHS, *Report to Congress: Expenses Incurred by Medicare Beneficiaries for Prescription Drugs*, Appendix 5. That analysis, based on the 1977 NMCES data, found that prescription drug coverage did not induce additional demand for prescription drugs among Medicare enrollees.

11. In a 1985 survey of individual medigap plans, Blue Cross-Blue Shield found that only about one-third offered any prescription drug coverage. Moreover, it is generally believed that the extent of prescription drug coverage under individual medigap plans has declined since this survey.

TABLE 11. USE OF PHYSICIAN SERVICES, AND USE OF AND SPENDING ON PRESCRIPTION DRUGS, BY ELDERLY NONINSTITUTIONALIZED MEDICARE ENROLLEES, CALENDAR YEAR 1987 (By supplementary insurance status and adjusted for individual characteristics)

		Source of Supplementary Insurance[a]				
			Individual	Group Policy		
	All	None	Policy	Employer	Union	Medicaid
Distribution of Elderly Population						
Percentage of Elderly	100	17	33	32	3	8
Predicted Annual Physician Visits[b]						
Percentage With One Visit or More	88	84[c]	92	92	93	93
Number per User	8.3	6.3[c]	8.3	8.4	8.4	8.4
Number per Enrollee	7.3	5.3	7.7	7.7	7.8	7.8
Predicted Annual Prescription Drug Use and Spending[b]						
Percentage With One Visit or More	82	79[c]	87	88	90	86
Number per User	17.9	15.1[c]	18.0	18.8	19.0	19.4
Number per Enrollee	14.7	12.0	15.7	16.6	17.2	16.8
Spending per User (In dollars)	303	225[c]	306	324	358	337
Spending per Enrollee (In dollars)	249	179	267	287	323	292

SOURCE: Congressional Budget Office estimates based on preliminary data from the 1987 National Medical Expenditure Survey.

NOTE: Use and spending figures in "All" column are based on tabulations of the data, while figures in the remaining columns are predicted values based on multiple regression estimates.

a. Estimates for about 7 percent of the elderly who are insured under various other types of health plans such as ones provided by professional associations are not shown here.

b. Adjusted to control for health status, age, sex, race and ethnicity, marital status, education, family income, employment status, and region of residence.

c. Use by people with no supplementary insurance differs from that by people holding individual supplementary insurance policies according to common standards of statistical significance. None of the estimates for the other supplementary insurance groups differs from that for the individual policyholders by a statistically significant amount.

marily those with employer-sponsored group policies--is only slightly higher than spending for enrollees with individual policies that generally do not cover drugs.[12] In fact, the difference in the two estimates shown in Table 11--$287 compared with $267, or about 7 percent--is not large enough to meet generally accepted standards for statistical significance. Moreover, the fully implemented CDI program will be considerably less generous than the group policies that now cover prescription drugs. These group policies generally do not have separate deductible amounts for prescription drugs, and many require that beneficiaries pay only small amounts of $1 to $4 per prescription.

The implications of these findings for CBO's conclusions about the amount of induced demand are as follows:

- The roughly 40 percent of enrollees who already have prescription drug coverage that is more comprehensive than will be provided by the CDI program were assumed not to increase their use of prescription drugs.

- The roughly 40 percent of enrollees who have supplementary coverage for physician services but who currently lack coverage of prescription drugs were assumed to expand their use by at most one-quarter of the 7 percent increase that CBO estimated would occur if they were to receive coverage as comprehensive as that offered to retiree groups, rather than the catastrophic coverage offered by the CDI program.[13]

- The remaining 20 percent of enrollees who have no supplementary coverage of any type were assumed to raise their use of prescription drugs by at most one-seventh of the estimated 60 percent increase that would result if they were to acquire both comprehensive drug coverage and supplementary cov-

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12. Of enrollees with group policies, about 92 percent obtained their coverage through their employers and 8 percent through their unions. A recent survey of companies writing retiree group coverage by the Health Insurance Association of America found that 94 percent of retiree plans covered prescription drugs. While specific estimates are not available, it is generally believed that union-based plans are more comprehensive in their coverage, and have lower cost-sharing requirements, than employer-based plans. Even these particularly generous plans, however, are associated with only 21 percent more spending on prescription drugs--$323/$267--than plans that do not cover them.

13. Even if all supplementary policies that currently do not cover drugs were to pay as much of the CDI program's cost sharing as do current plans, the induced effect on demand for this 40 percent of enrollees would only rise to the 7 percent estimated from the results reported in Table 11. More specifically, $287/$267 = 1.07, or a 7 percent increase.

erage for physician services.[14] Essentially all of these enrollees will continue to be affected by Medicare's cost-sharing provisions for physician services and prescription drugs, because they will have no reason to reverse their current decision not to purchase supplementary insurance.

Combining these estimates yielded an overall inducement effect of about 2 percent on total spending.[15] CBO assumed that three-quarters of the increase will affect spending over the deductible amount. When expressed as a percentage of spending over the deductible, CBO's assumed inducement rate is 4 percent. (Because the remainder was assumed to affect spending below the deductible amount, it will not influence the estimated cost of the CDI program.)

EFFECTS OF THE REIMBURSEMENT METHODS

The CDI program's reimbursement methods are expected to control program costs in two ways:

- Pharmacies will not be reimbursed for the amount of charges that exceeds specified ceilings; and
- The MCCA provides strong economic incentives to substitute lower-cost generic drugs for higher-cost, brand-name drugs.

CBO estimates that these methods will reduce program outlays by about 10 percent compared with what would otherwise occur.

Reimbursement Methods

The MCCA specifies the methods for reimbursement under the CDI program. These methods are summarized in Box 4. For single-source

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14. This estimate is based on the estimates in Table 11 ($287/$179 = 1.60, or 60 percent higher spending).

15. The effect on total spending of each group's added demand is the product of its average spending relative to average spending for all enrollees, its proportion of the population, the assumed proportion of the increase based on estimates in Table 11, and that percentage increase. Specifically: (0.99)(0.40)(0.25)(7) + (0.77)(0.20)(0.15)(60) = 0.7 + 1.4 = 2.1 percent. Two-thirds of this induced demand will come from increased use of prescription drugs by the third group--namely, those who have no supplementary coverage of any type.

drugs--that is, those protected from competition by patent--the program applies a three-part test: it will pay the lowest of (1) the pharmacy's actual charge; (2) the average wholesale price (AWP) per unit, times the number of tablets or other units, plus a dispensing fee; or (3) the 90th percentile of charges for the drug, adjusted for the number of units. The purpose of this three-part test is--for any specific drug--to allow Medicare to enjoy the benefits of low-priced prescriptions, while avoiding the costs of prescriptions with exceptionally high charges.

For multiple-source drugs--those that have come "off patent" and have generic substitutes--the reimbursement method will vary, depending on how the physician writes the prescription. If the brand name is specified and the physician certifies in writing that the "brand is medically necessary," then the rules for single-source drugs will apply. Otherwise, reimbursement will be set at the lower of (1) the actual charge or (2) the median AWP per unit for all drugs of this type (regardless of manufacturer), times the number of units, plus a dispensing fee. In effect, this approach will encourage substituting a generic drug whenever it costs less than the brand-name drug, unless

BOX 4
REIMBURSEMENT METHODS UNDER THE CATASTROPHIC DRUG INSURANCE PROGRAM

Type of Drug	CDI Will Pay the Lowest of:
Single-Source Drug or Restrictive Prescription	Actual Charge, or
	(Number of Units x Unit AWP) + Dispensing Fee, or
	90th Percentile of Actual Charges
Multiple-Source Drug	Actual Charge, or
	(Number of Units x Median Unit AWP) + Dispensing Fee

SOURCE: Congressional Budget Office summary of provisions of the Medicare Catastrophic Coverage Act of 1988.

NOTE: AWP = average wholesale price.

the physician prohibits the substitution. Moreover, high-cost generic substitutes will be placed at a similar disadvantage to brand-name drugs under this scheme, since reimbursement will be pegged to the median market price of all versions of the drug, regardless of which manufacturer's product is actually dispensed.

The reimbursement system has several other features. Data used to determine the percentile limits and the AWPs may be drawn from periods up to six months before their application. In 1991, for both single-source and multiple-source drugs, the dispensing fee that is combined with the AWP limits will be $4.50 for participating pharmacies and $2.50 for nonparticipating ones. Thereafter, these fees will be indexed to the implicit price deflator for the gross national product. The reimbursement limits for participating pharmacies will be based on a higher dispensing fee because they must perform additional services. Specifically, they must apply for reimbursement on behalf of enrollees through the electronic claims system, and must offer to inform enrollees about the appropriate use of the drugs prescribed for them and about possible interactions with other prescription drugs. Enrollees who fill their prescriptions at nonparticipating pharmacies must apply for reimbursement themselves.

Simulation of the Effects

To estimate the effects of the reimbursement methods on outlays of the CDI program, CBO simulated the reimbursement rules using a large computer file of pharmacy records of individual prescriptions sold to the elderly during calendar year 1988.[16] Three classes of drugs were considered in the analysis:

- Single-source drugs with a high volume of sales;
- Single-source drugs with a low volume of sales; and
- Multiple-source drugs.

16. The data were from the "Senior Scripts" file generated by Pharmaceutical Data Services, Inc. (PDS). It was a key data source used by the Administration for its May 1989 estimate of the costs of the CDI program. The file contains over 9 million prescription records collected by PDS from software vendors whose contracts with pharmacies include provisions for sharing information about all their transactions, whether paid by cash, Medicaid, or some other third party.

Single-source drugs were examined in two groups because industry specialists think that pricing is less competitive for low-volume, brand-name items.

Within each category, a sample of drugs commonly prescribed for the elderly was chosen by CBO with the assistance of pharmacists from the American Pharmaceutical Association. CBO then analyzed all records in the file for these particular drugs. For example, one of the high-volume, single-source drugs chosen was Tagamet, an anti-ulcer medication, for which all 41,285 transactions in the file were analyzed. The results of the simulations are shown in Table 12.

TABLE 12. ESTIMATED SAVINGS FROM LEGISLATED LIMITS ON REIMBURSEMENTS FOR PRESCRIPTION DRUGS, CALENDAR YEAR 1988 (As a percentage of spending for the particular type of prescription drug)

Type of Drug/ Assumption	Savings from Limits: 90th Percentile of Charges	Unit AWP[a] + $4.50	Unit AWP[a] + $2.50	Combined Effect[b]
Single-Source Drugs				
High-volume drugs	0.5	1.1	3.3	1.5
Low-volume drugs	0.8	4.2	13.4	5.6
Multiple-Source Drugs				
"No substitution"	0.3	2.8	7.9	3.5
"Complete substitution"	c	17.8	26.4	18.6
Total[d]	0.3	9.7	15.6	10.4

SOURCE: Congressional Budget Office simulations based on data for a sample of drugs from the 1988 Pharmaceutical Data Services, Inc. (PDS) "Senior Scripts" data base of individual prescriptions.

NOTE: AWP = average wholesale price.

a. In the case of single-source drugs, this amount is the AWP for that drug. In the case of multiple-source drugs, this amount is the median AWP for all manufacturers.

b. Estimates assume that 90 percent of pharmacies will participate.

c. Under this assumption, the percentile limit would never have an effect, because no prescriptions would specify that the brand-name drug is medically necessary.

d. Estimates of total savings assume that, in the case of multiple-source drugs, 90 percent of the possible substitutions of generic for brand-name drugs will occur.

Charges for single-source drugs will be subject to two ceilings, a percentile limit and an AWP limit. The simulations considered the separate effect of each limit as well as the combined effect; the latter will be less than the sum of the separate effects because many relatively high-priced prescriptions will be affected by both limits. By itself, the percentile limit will save less than 1 percent. Both versions of the AWP limit will lead to greater reductions in the amount reimbursed than the percentile limit and, as expected, the magnitude of the savings will be greater when the dispensing fee is set at $2.50, the rate for nonparticipating pharmacies, than when it is set at $4.50, the rate for participating pharmacies.

To estimate the combined effect of the AWP and the percentile limits, CBO assumed that 90 percent of pharmacies will become participating providers. Thus, the combined effect of the reimbursement limits will be to save 1.5 percent of charges for high-volume drugs, and 5.6 percent for low-volume drugs, that have only a single source.

Larger savings will accrue as a result of the incentive to substitute generic for brand-name drugs when multiple sources are available. CBO simulated two polar cases:

- No substitution, in which all prescriptions currently dispensed as brand-name drugs were assumed to be "restricted" by physicians. In this case, the savings would be limited to those that will arise from the percentile and AWP limits.

- Complete substitution, in which all prescriptions were assumed to be written without restriction. In this case, the generic price limits would apply, whether the prescription is dispensed in the brand-name form or as a generic substitute.

As in the case of single-source drugs, the percentile limit will contribute little to total savings for multiple-source drugs compared with the AWP limits. Moreover, the largest part of the savings will be determined by the extent of generic substitution, as can be seen by comparing the 3.5 percent savings in charges for multiple-source drugs when no substitution was assumed with the 18.6 percent savings when complete substitution was assumed (see Table 12). CBO assumed that 90 percent of the possible substitution between brand-name and generic drugs will actually occur.

Total savings from all reimbursement limits were calculated by combining the savings for each type of drug based on their estimated market shares. This adjustment reduced projected outlays by about 10 percent from what they would otherwise be.

A final factor that might affect the estimated savings from these reimbursement methods is the extent of "inflation" in prices that may take place as pharmacies anticipate and then become subject to this reimbursement system. Such inflation has been apparent under Medicare's system for reimbursing physicians, which has used a similar methodology for determining payments. CBO concluded that competition among pharmacies, combined with the MCCA's requirement that pharmacies not charge Medicare enrollees more than other customers, will be strong enough to counter any similar tendencies in the case of prescription drugs.

OTHER ADJUSTMENTS IN ESTIMATING BENEFITS

Several other adjustments were made in the process of producing the current CBO estimates. On net, these adjustments were projected to increase outlays for the CDI program by about 5 percent.

One upward adjustment occurred because the CDI program will cover immunosuppressive drugs and drugs administered intravenously in the home. These costs were estimated separately because CBO did not expect the NMES data to reflect adequately these relatively rare, but exceptionally costly, instances. In addition, once the CDI program is available, Medicare enrollees may be charged for some of the drugs that are now provided to them free of charge. Moreover, many over-the-counter drugs are also available in higher strengths by prescription--for example, Ibuprofen and Motrin. Especially after the coinsurance rates fall to 20 percent, physicians may shift some enrollees who have exceeded the deductible to drugs that must be prescribed. Finally, the estimate was raised to account for the fact that a small number of people with Acquired Immune Deficiency Syndrome (AIDS) may, as a result of lengthened lifespans, become eligible for Medicare through its disability provisions.

Another adjustment lowered estimated outlays. The program should receive nearly all claims for payment, since all transactions in

participating pharmacies will be recorded directly at the time of sale regardless of whether the enrollee has exceeded the deductible. Nevertheless, CBO assumed that about 3 percent of potential reimbursements will not be made because some claims will never be filed with the program. The reasons for this slippage include electronic failure, cash purchases made by a friend or relative without the enrollee's magnetically encoded identification card (commonly called a "swipe" card) or identification number, cash purchases by substance abusers who wish to escape detection, and purchases made at nonparticipating pharmacies that enrollees do not submit.

ADMINISTRATIVE COSTS AND THE TIMING OF PAYMENTS

In addition to the one-time costs involved in starting a new health care financing program, the administrative costs of prescription drug coverage were expected to account for a larger proportion of ongoing costs than is the case for hospital and physician services. These higher administrative costs will arise from the need to handle a much larger volume of claims--for example, Medicare's inpatient hospital claims total about 11 million each year, compared with an expected volume of more than 600 million prescriptions under the CDI program.

CBO considered three categories of administrative costs: one-time costs of starting the program, continuing costs that will change only slightly as the volume of claims grows, and the costs of processing claims. Total administrative costs were estimated to be $746 million in 1991, with 9 percent, 12 percent, and 79 percent accounted for by the respective categories.

Start-up costs will come from several sources. For example, the three regional processors of bills for prescription drugs will have to train staff, purchase and test computer hardware, and develop the necessary software. Pharmacies will have to be contacted, enrolled in the program, and, in some cases, provided with "swipe" card machines. Finally, beneficiaries and physicians will have to be informed about the new benefits.

The continuing costs of administration will include those for maintaining a national data base and using it for program accounting, review of drug use, control of fraud and abuse, statistical reporting, and

research. Several of these functions will require personnel and will impose other costs on both the firms hired to process the bills and on the Health Care Financing Administration (HCFA). CBO's estimates of these costs were based on HCFA's experience with the costs of analogous functions in the current Medicare program.

Processing the claims will account for most of the administrative costs. The estimate for 1991 assumed that a total of 635 million prescriptions will be processed--90 percent through the electronic point-of-sale system at a cost of $0.89 each, and the remaining 10 percent on paper using the Universal Claims Form at a cost of $1.00 for each prescription. These estimated costs were based on conversations with staff of insurance companies, firms specializing in processing electronic claims from pharmacies, and state Medicaid programs.

Finally, because spending for an enrollee's prescription drugs must exceed a sizeable deductible amount before the program will reimburse any costs, assumptions must be made about the timing of drug purchases during the calendar year. CBO assumed that spending patterns for both enrollees with chronic illnesses and those with acute illnesses will, on average, be even throughout the year. In addition, because the MCCA specifies that bills should be paid on a monthly cycle, CBO assumed that three weeks will elapse, on average, between the time the pharmacy fills a prescription and the time it is reimbursed. These assumptions, in combination with the required deductible amount, implied that only half of the reimbursements for prescriptions filled during a calendar year will be made by September--that is, by the end of the fiscal year. Consequently, CBO calculated outlays by dividing calendar year spending evenly between the same fiscal year and the subsequent one.

CHAPTER IV

RECEIPTS

This chapter describes how CBO estimated receipts for the Catastrophic Drug Insurance program.

THE MEDICARE CATASTROPHIC COVERAGE ACT'S FINANCING MECHANISMS

The Medicare Catastrophic Coverage Act established two financing mechanisms--a flat premium to be paid by each SMI/CDI enrollee, and an income-related premium to be paid by those eligible for Hospital Insurance (HI) who have federal income tax liabilities of $150 or more. The act intended to finance 37 percent of the cost of the program with the flat premium and the remaining 63 percent with the income-related premium.

The act sets the level of the flat premium in each year from 1989 through 1993, and sets the portion of the premium that will go into the CDI trust fund. The annual levels and the amounts that will be allocated to the CDI trust fund are shown in Table 13. Beginning in 1994, the growth in the flat premium will depend on the rate of growth in the per capita cost of the catastrophic coverage provided under HI, SMI, and CDI. The premium will be adjusted up or down by an additional amount if the program's reserves are below or above the target level.

The income-related premium is paid by any person who is eligible for HI for at least six months during the year, who has income tax liability of at least $150, and who resides in one of the 50 states or in the District of Columbia. Taxpayers who are eligible for HI are liable for the premium even if they do not enroll in SMI/CDI. Taxpayers who receive taxable government pensions but not Social Security benefits are allowed to compute the income-related premium as if the first $6,000 ($9,000 for a couple) of the pension were not subject to tax to make their treatment comparable. The act sets the rate for the

TABLE 13. ANNUAL RATES FOR FLAT AND INCOME-RELATED PREMIUMS ENACTED IN THE MEDICARE CATASTROPHIC COVERAGE ACT (By calendar year, in dollars)

	1989	1990	1991	1992	1993
Additional Flat Premium[a]					
CDI[b]	0.00	0.00	23.28	29.40	36.24
Catastrophic HI and SMI[c]	48.00	58.80	65.52	81.00	86.16
Total	48.00	58.80	88.80	110.40	122.40
Income-Related Premium (Per $150 of income tax liability)					
CDI[b]	0.00	10.36	8.83	9.95	12.45
Catastrophic HI and SMI[c]	22.50	27.14	30.17	30.55	29.55
Total	22.50	37.50	39.00	40.50	42.00
Annual Maximum per Person	800	850	900	950	1,050

SOURCES: Congressional Budget Office estimates and the Medicare Catastrophic Coverage Act of 1988.

NOTES: CDI = Catastrophic Drug Insurance; HI = Hospital Insurance; SMI = Supplementary Medical Insurance.

a. Receipts from the flat premium are shown as an offsetting receipt (that is, a negative outlay) in budget documents.

b. Receipts based on these rates are allocated to the CDI trust fund.

c. Receipts from the flat and income-related premiums that are not allocated to the CDI trust fund are recorded in the catastrophic account and are expected to pay for the HI and SMI benefits enacted in the MCCA.

income-related premium, the portion allocated to the CDI trust fund, and a maximum amount of the premium for 1989 through 1993. These figures are also shown in Table 13. If a couple files jointly but only one of them is eligible for HI, the income-related premium rate is half the rate shown. The maximum total income-related premium per person is $800 in 1989, rising to $1,050 in 1993.

The act provides separate formulas for determining the income-related premium rate and the maximum premium in 1994 and beyond. The premium rate is scheduled to rise with the cost of catastrophic coverage provided under HI, SMI, and CDI, but with an adjustment to

reduce excessive reserves or to build up insufficient reserves. The maximum premium will increase at the same rate as the per capita cost of outlays for SMI and CDI that are not covered by receipts from the flat premium, but the increase will occur two years later.

The formulas are designed to adjust the two premiums so that the income-related one will, in the long run, provide 63 percent of the total financing. There are limitations on how much the premium rates can be adjusted, however, so the ratio may not be 63 percent in every year. The law provides that neither the flat nor the income-related premium may be reduced, and that the income-related premium can be increased by no more than $1.50 per $150 (that is, by 1 percent) of tax liability in any year.

METHODS FOR ESTIMATING PREMIUMS

Estimating receipts from the flat premium is straightforward because it does not require any information about the incomes of participants in the program. For the years before 1994, when the level of the flat premium begins to be determined by a formula, the only information required was the number of SMI/CDI enrollees. These numbers were multiplied by the statutory per person annual premium. The level of the flat premium for 1994 was estimated by following the procedure specified in the act. Because the projected 1992 contingency margin of -55 percent is less than the 75 percent specified in the act, the percentage increase in the premium needed to eliminate the 1992 shortfall was calculated. It was then applied to the 1993 premium to determine the 1994 premium amount.

Estimating receipts from the income-related premium is more complex, and the results are more uncertain, because the receipts depend on the income levels of people eligible for HI. To estimate these receipts, CBO adapted the procedures it generally uses to project individual income tax revenues. CBO's income tax projections were based on data from the Statistics of Income (SOI) for 1985, a representative sample of individual income tax returns for tax year 1985. The SOI data have been adjusted to represent data for 1989 through 1994 using income and other data from CBO's economic forecast, projections of the elderly and nonelderly populations prepared by the Social Security Administration, and CBO's projections of other tax

return characteristics such as itemized deductions. Tax liabilities were calculated for the representative taxpayers for each year. The liabilities were then weighted and summed to reach aggregate income tax liability under current law before adding the income-related premium in each year.

Starting from this base, CBO estimated receipts from the income-related premium by assuming that all taxpayers who would have claimed an elderly exemption under previous law are subject to the tax. A small adjustment was made to this estimate because some elderly people are not entitled to HI, while some nonelderly disabled persons are entitled. The estimate was also adjusted to reflect the special provision for recipients of government pensions.

CBO assumed that, after the first two years--that is, beginning in 1991--taxpayers will adjust their quarterly estimated tax payments and withholding so that they will pay two-thirds of the income-related premium before September 30 of the year for which it is owed and that they will pay the remaining one-third between October 1 and the tax filing deadline of April 15 of the following year. Taxpayers could pay this last one-third by increased withholding, in an estimated payment in January, or with their final payment due by April 15. Under this assumption, taxpayers will pay the income-related premium at about the same rate as they pay their regular income tax liability.

For 1989 and 1990, however, CBO assumed that taxpayers will pay the income-related premium on a slower schedule; that is, they will leave a larger fraction of it to be paid with their final April 15 payment. There is no penalty for waiting until April 15, 1990, to pay the income-related premium for tax year 1989, and the program is new. Therefore, CBO assumed that only 13 percent of receipts from the premium for calendar year 1989 will be received by the IRS in fiscal year 1989. The 1990 premium rate will be considerably higher than the 1989 rate. Because taxpayers can meet the payment requirements by remitting taxes due in any year at the rate owed in the previous year, CBO assumed that taxpayers will pay only 50 percent of their 1990 liability in fiscal year 1990.

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